KEMENTERIAN PENGAJIAN TINGGI

POLITEKNIK MALAYSIA
SULTAN AZLAN SHAH

STUDENT STUDY GUIDE

DIPLOMA IN CIVIL ENGINEERING (DCE)

SIXTH EDITION

NO.	CONTENTS	PAGES

THE ORGANISATIONAL CHART OF CIVIL ENGINEERING PROGRAMME
SULTAN AZLAN SHAH POLYTECHNIC

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LECTURERS		
 NAHAR EFFENDI BIN SHAARI	 HASLIZA BT YUSOF	

CHECKLIST OF COURSES FOR DIPLOMA IN CIVIL ENGINEERING

NAME:
REGISTRATION NUMBER:

NO.	COURSE CODE	COURSE	CREDIT VALUES	SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4	SEMESTER 5	SEMESTER 6
1	MPU21032	Penghayatan Etika dan Peradaban	2						INDUSTRIAL TRAINING
2	DUE10012	Communicative English 1	2						
3	MPU24XX1	Sukan ***	1						
4	MPU24XX1	Unit Beruniform 1 ***							
5	DUW10022	Occupational, Safety & Health for Engineering	2						
6	DBS10012	Engineering Science	2						
7	DBM10013	Engineering Mathematics 1	3						
8	DCC10012	Engineering Drawing and Computer Aided Drafting (CAD)	2						
9	DCC10022	Brickworks and Concrete Laboratory	2						
10	DCC10032	Civil Engineering Materials	2						
11	MPU23052	Sains, Teknologi dan Kejuruteraan Dalam Islam*	2						
12	MPU23042	Nilai Masyarakat Malaysia**							
13	MPU24XX1	Kelab/Persatuan ***	1						
14	MPU24XX1	Unit Beruniform 2							
15	DBM20023	Engineering Mathematics 2	3						
16	DCC20042	Plumbing and Carpentary Workshop	2						
17	DCC20053	Mechanics Of Civil Engineering Structures	3						
18	DCC20063	Engineering Survey	3						
19	DCC20073	Contract And Estimating	3						
20	DUE30022	Communicative English 2	2						
21	MPU22012	Entrepreneurship	2						
22	DCC30082	Introduction To Industrialised Building System (IBS)	2						
23	DCC30093	Geotechnical Engineering	3						
24	DCC30103	Highway And Traffic Engineering	3						
25	DCC30112	Geotechnical And Highway Laboratory	2						
26	DCC30122	Fluids Mechanics	2						
27	DUE50032	Communicative English 3	2						
28	DCC40132	Project Management and Practices	2						
29	DCC40142	Steel Structural Design	2						
30	DCC40152	Water Supply and Waste Water Engineering	2						
31	DCC40163	Theory Of Structures	3						
32	DCC40172	Structure, Hydraulics and Water Quality Laboratory	2						
33	DCC40181	Final Year Project 1	1						
34		Electives 1	2						
35	DCC50194	Final Year Project 2	4						
36	DCC50203	Reinforced Concrete Design	3						
37	DCC50212	Hydrology	2						
38	DCC50222	Hydraulics	2						
39	DCC50232	Engineering in Society	2						
40		Electives 2	2						
41	DCC50242	Building Imformation Modeling (BIM)	2						
42	DCC50252	Basic Building Services	2						
43	DCC50262	Environmental Pollution & Control	2						
44	DUD10012	Design Thinking	2						
		TOTAL	**92**	**18**	**17**	**16**	**16**	**15**	**10**

1.0 HISTORY AND BACKGROUND OF POLYTECHNIC EDUCATION

Polytechnic education commenced in Malaysia with the establishment of Ungku Omar Polytechnic, Ipoh in 1969 under the United Nations Development Plan. The need to provide wider access to technical education and training for the country was given prominence by the Cabinet Committee on Education in 1979 and in the First National Industrial Plan (1985-1995). In addition to decisions made by these committees, the Cabinet Committee on Training (1991) paved the way for the significant development in Polytechnic education. As a result, there was a significant growth in the number of Polytechnics with the ability to offer more programmes to cater to the requirements of semi-professional personnel in the engineering, commerce and service sectors.

The Department of Polytechnic Education (DPE), Ministry of Higher Education Malaysia (MoHE) is tasked to formulate policies and set the direction of all the polytechnics under its purview. DPE develops strategic plan, manages, monitors and evaluates all education programmes offered at all of its institutions. In terms of governance and management, polytechnic system is a centralised system in which policies and decisions are developed and agreed upon at the central office (DPE) with input and feedbacks from all institutions and major stakeholders.

2.0 HISTORY AND BACKGROUND OF SULTAN AZLAN SHAH POLYTECHNIC (PSAS)

Politeknik Sultan Azlan Shah (PSAS), formerly known as Politeknik Tanjong Malim (PTM) was the 15th established polytechnic under the Ministry of Education Malaysia. PTM commenced on 1 March 2002 at a school premise – Slim River Technical Secondary School, Perak Darul Ridzuan. On 1 April 2003, it was relocated to its new premise of 110 acres at Behrang, Perak Darul Ridzuan. This campus is equipped with up-to-date infrastructure which provides a conducive and ambient environment for higher education learning. It enrolled its first batch of 553 students in July 2003.

This campus was officiated by the late Sultan of Perak, Sultan Azlan Muhibbuddin Shah Ibni Almarhum Sultan Yussuf Izzuddin Shah Ghafarullahu-lah on 7 May 2005 and assumed a new name known as Politeknik Sultan Azlan Shah or in short PSAS.

PSAS is a higher education institution formerly under the purview of DPE Malaysia but in the year of 2015 this institution was placed under the authority of MOHE, Malaysia. This institution is responsible for advocating technical education and vocational programmes for Malaysian students. It plays a vital role in producing semiprofessional workers for the engineering and commercial industries in the private and public sectors in Malaysia. There are six academic departments and 12 support units in the management of the institution.

3.0 VISION AND MISSION OF DEPARTMENT OF POLYTECHNIC AND COMMUNITY COLLEGE EDUCATION (DPCCE) AND SULTAN AZLAN SHAH POLYTECHNIC (PSAS)

DPCCE Vision :

To be the Leading-Edge TVET Institution

DPCCE Mission :

This mission can be divided into four important components which are:

1. To provide wide access to quality and recognized TVET programmes.
2. To empower communities through lifelong learning.
3. To develop holistic, entrepreneurial and balanced graduates.
4. To capitalise on smart partnership with stakeholders.

PSAS Vision :

To emerge as a premier industry-led TVET institution

PSAS Mission :

1. To provide widespread access to quality and recognized TVET programmes
2. To contribute to the community through lifelong learning and outreach programmes
3. To produce holistic, entrepreneurial and balanced graduates
4. To fully benefit from the smart partnerships with stakeholders particularly the industries

4.0 OUTCOMES BASED EDUCATION

"OBE, like most concepts in education, has been interpreted in many ways" - (Killen, 2000). Talking about OBE, there are 3 levels:

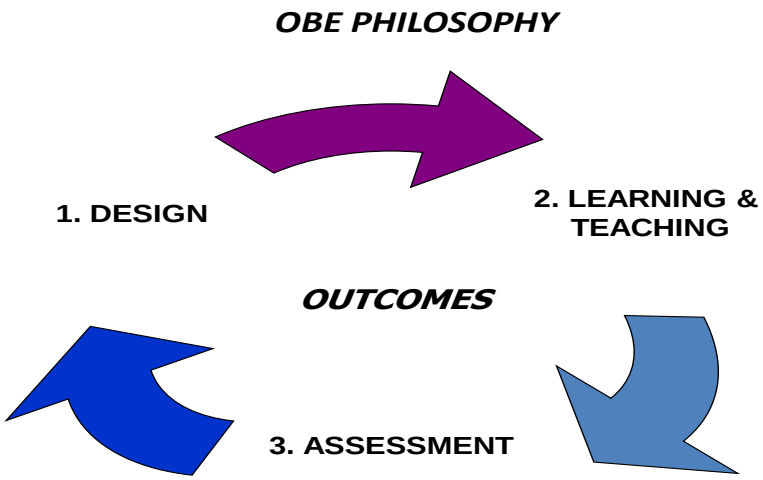
1) Philosophy / Theory / Broad Perspective
2) Curricula / structures / procedures
3) Classroom practice (PBL, CL, AL, etc)

An educational philosophy that states education ought to be aimed at producing particular educational outcomes is giving students a particular, minimum level of knowledge and abilities. OBE addresses the following questions:

1) What do you want the students to learn?
2) Why do you want them to learn?
3) How can you best make students learn it?
4) How will you know what they have learnt?

Outcomes Based Education focuses on student learning by:

1. Using learning outcome statements to make explicit what the student is expected to be able to know, understand or do;
2. Providing learning activities which will help the student to reach these outcomes;
3. Assessing the extent to which the student meets these outcomes through the use of explicit assessment criteria.



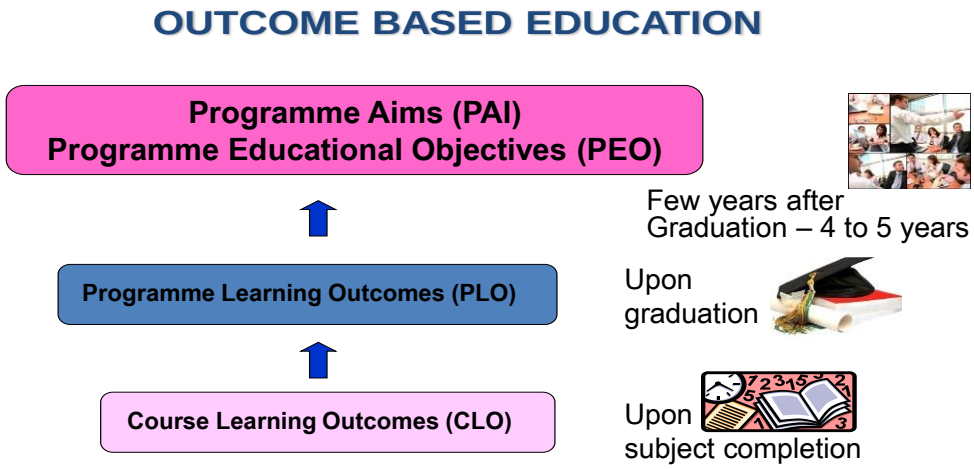


Figure 1 : Outcome Based Education

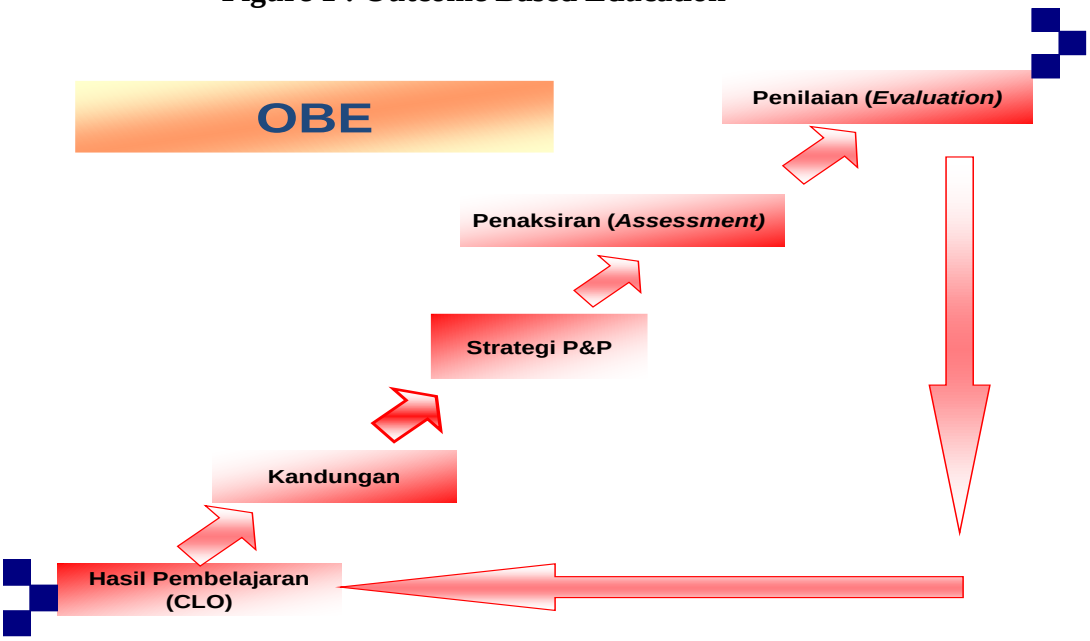


Figure 2 : Outcomes Based Education

4.1 Key Purpose Of OBE

1) EQUIP - ALL students with the competencies and orientations needed for future success
2) IMPLEMENT - Programmes and conditions that maximize learning success for ALL students

4.2 OBE Principles

1) **Clarity of focus** – fokus kepada apa yang pelajar boleh buat dengan jayanya. (Adakah pelajar tahu dengan jelas sebelum mereka memulakan pembelajaran apa yang mereka sepatutnya tahu dan boleh buat apabila selesai pembelajaran?)

2) **Design down** – rekabentuk kurikulum bermula dari definisi yang jelas mengenai apa yang pelajar akan capai di akhir pendidikan formal mereka. (Adakah kurikulum telah digubal bermula dari hasil pembelajaran dengan cara yang sistematik supaya laluan untuk mencapainya jelas?)

3) **High expectation** – pensyarah meletakkan standard prestasi yang tinggi kepada pelajar. (Adakah harapan dan cabaran untuk berjaya diberikan kepada semua pelajar secara saksama – tiada bell curve?)

4) **Expanded opportunities** – Pensyarah mesti menyediakan peluang yang secukupnya untuk berjaya. (Adakah pelajar diberi lebih dari satu peluang untuk mencapai standard yang ditetapkan?

4.3 Relationship Between Curriculum, Instructions & Assessment

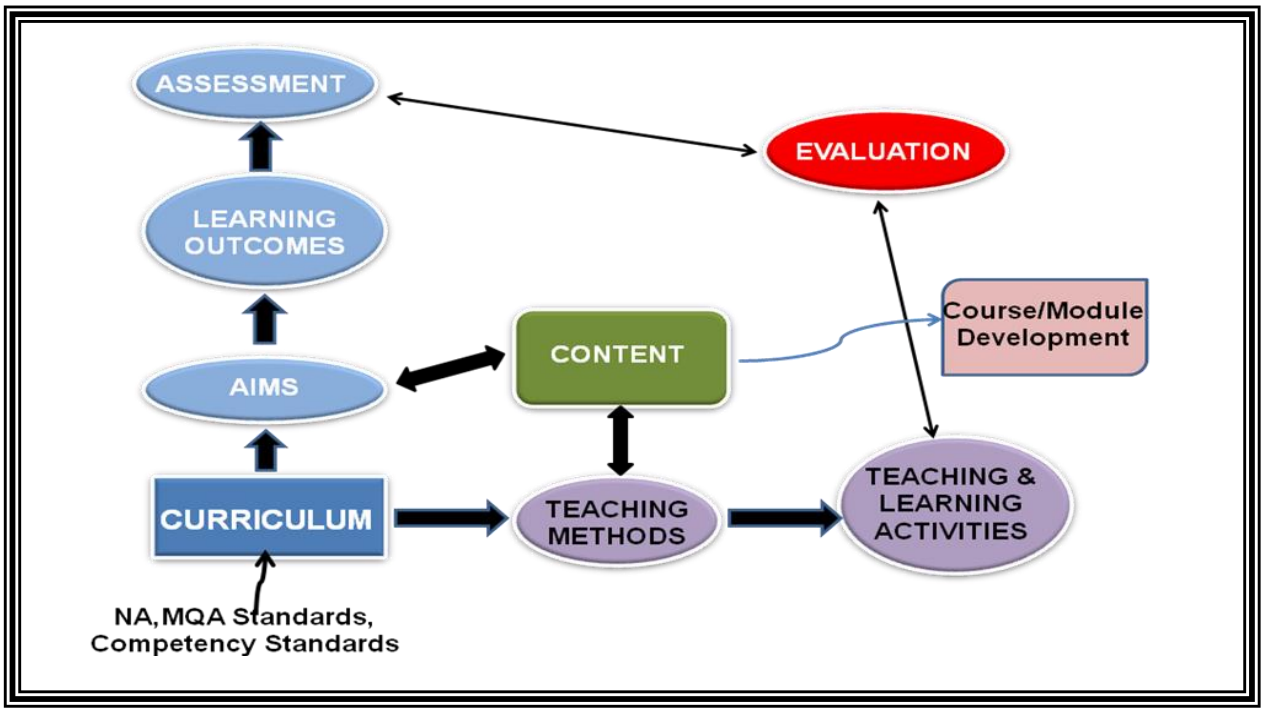


Figure 3 : Relationship between Curriculums, Instructions & Assessment

4.4 Learning Outcomes : The shift from teachers to students

Table 1 : The shift from teachers to students

Teacher – Students ↓ *Concerns for self* ↓ *What will I teach?* *What will I teach next?* ↓ *Content* ↓ *Non-behavioural objectives*	*Teacher – Student* ↓ *Concerns for students/ impact of teaching on students* ↓ *Are they learning what I teach?/What are the impacts of my teaching?/ What can they do as a result of my teaching?* ↓ *Behavioural objectives/ learning outcomes*

4.5 Differences Between Based Learning System And OBE System

Table 2 : The Differences Between Based Learning System and OBE System

Content Based Learning System	***Outcomes Based Educational System***
Passive students	*Active learners*
Assessment process – exam & grade driven	*Continuous assessment*
Rote learning	*Critical thinking, reasoning, reflection & action*
Content based/broken into subjects	*Integration knowledge, learning relevant/ connected real life situations*
Textbook/worksheet focused & teacher centered	*Learner centered & educator/ facilitator use group/ teamwork*
See syllabus as rigid & non negotiable	*Learning programmes seen as guides that allow educators to be innovative & creative in designing programmes/activities*
Teachers/trainers responsible for learning - motivated by personality of teacher	*Learners take responsibility for their learning, learners motivated by constant feedback/ affirmation of worth*
Emphasis what teacher hopes to achieve	*Emphasis outcomes – what learner becomes & understands*
Content placed in rigid time frames	*Flexible time frames - learners work at own pace*
Stay in single learning institution until complete	*Learners can gather credits different institutions until achieve Qualification*
Previous knowledge & experience in learning field ignored – Each time attends whole course	*Recognition of prior learning: after pre-assessment, learners credited outcomes demonstrated or transfer credits elsewhere*

5.0 LEARNING OUTCOMES

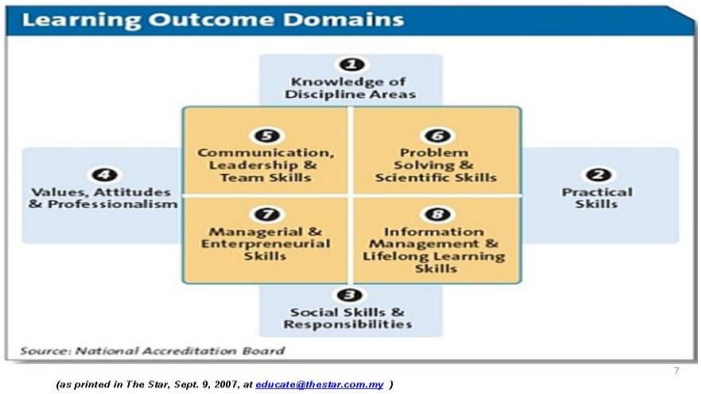
- **In simple terms**

  Specific, understandable, measurable, assessable and student-centered statements as to what a student will be able to do at the end of a period of study.

Why are these important?

- Lead to a more student-centered approach;
- Mark a shift from the content of a course (what the teacher wants to teach) towards the outcome (what the student is able to do on successful completion of the programme/course);
- Guide students in learning;
- Help staff focus on what they want students to achieve;
- Provide useful information to potential students and employers.

MQF Learning Outcome Domains (MQF Para 15)



(as printed in The Star, Sept. 9, 2007, at educate@thestar.com.my)

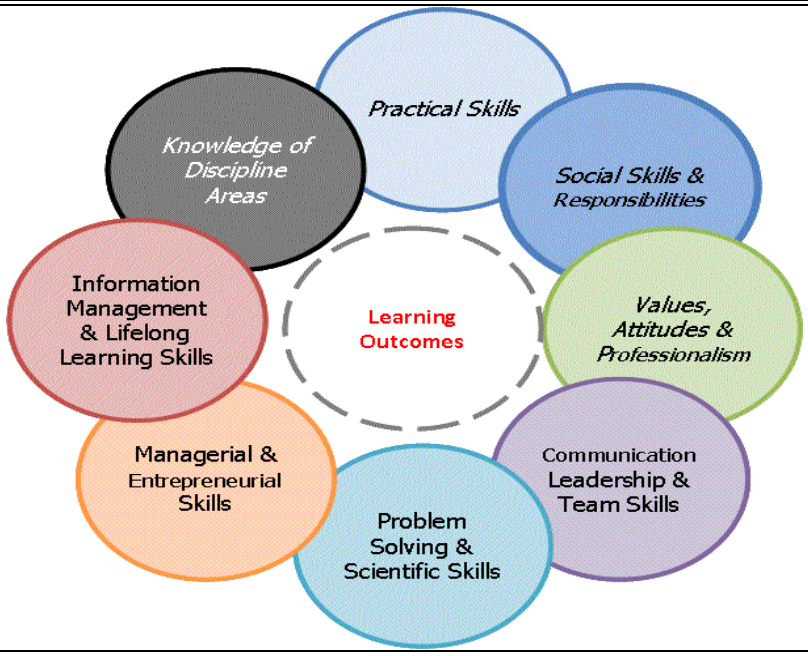


Table 3 : MQF Learning Outcome Domains

Knowledge of Discipline Areas	**Practical Skills**
• The knowing of major ideas • Mastery of the subject matter • Observing and recalling information • Recognizing concepts	• Carrying out a professional task e.g. running, dancing, and diagnosis; • Reading and understanding instructions; • Perceiving and responding effectively • Applying learnt skills in a safe environment
Social Skills & Responsibilities	**Values, Attitudes & Professionalism**
• Demonstrating skills required in meeting people, and networking • Showing an interest in and concern of others • Being comfortable in talking with and accepting guidance and directions • Responding sympathetically and emphatically to others.	• Having feelings, perceptions, opinions and attitudes about oneself, towards others and the organization; • Having the capacity to show sympathy • Having empathy and the capacity for tolerance • Good time management and respect for time
Communication, Leadership & Team Skills	**Problem Solving & Scientific Skills**
• Being able to write, speak and listen • Being responsible and dignified • Being a Team player • Having multicultural and multiracial competencies	• Projecting critical and lateral thinking and logical reasoning • Being creative and explorative • Being inspired • Producing new ideas and technologies based on existing skills
Managerial & Entrepreneurial Skills	**Information Management & Lifelong Learning Skills**
• Planning and implementing effectively • Knowing what to do and how to do at the right time and place • Making judgments and decisions • Having good time management	• Using ICT in the location and evaluation of information • Using information management systems • learning how to learn • Adopting a continuous professional development approach

6.0 STUDENT LEARNING TIME (SLT)

A period of time that a student should spend on the learning-teaching activities for a given credit which comprises guided learning, independent learning and assessment time.

- Effective learning time or student effort in learning or the learning volume
  (a quantitative measurement of all learning activities), in order to achieve the specified learning outcomes;
- Inclusive all learning time components (learning activities), i.e. formal and non-formal. Total time required by student to learn a particular component of curriculum;
  i.e. Official Contact Time + Guided Learning Time + Self Study Time (Independent learning) + Assessment Time.
- Synonymous to student's academic load, e.g. credit hours; subjects; modules; etc.

7.0 PROGRAMME OVERVIEW

7.1 Introduction

Diploma in Civil Engineering provides knowledge, skills and attitude to adapt to new technology in civil engineering with the ability to demonstrate professionalism and work ethics in fulfilling responsibilities towards the creator, client and society. This programme provides theory as well as carries out practical work. This programme also offers courses in Civil Engineering area such as Engineering Graphics, Water & Water Resources Engineering, Environment, Strength & Structural Design, Road & Transportation, Engineering Management and Geotechnics. This programme is specially designed with hands-on training in addition to the theoretical learning in civil engineering. They are required to complete the industrial training to prepare graduates for employment in different sectors of the industry because the skills and knowledge acquired are used throughout modern industry. They will be able to use appropriate communication and interpersonal skills to perform tasks in various situations. Graduates will demonstrate desired behavioural traits like integrity, team work, problem solving and passion in performing the tasks related to their area of specialization. They will possess entrepreneurial skills to contribute to the economic growth for the nation's development in the construction industries. With these additional skills, they will be more competitive in the present job market.

7.2 Synopsis

This programme is designed to equip students with sound knowledge, skills, attitude and understanding of the environment, construction industries, construction designs and infrastructural development of civil engineering. The knowledge and skills acquired will be useful for success in future or current employment.

7.3 Job Prospects

The knowledge and skills that the students acquire from the program will enable them to participate in the job market such as specified as:

1. Technical Assistant
2. Site Supervisor
3. Inspector of Work
4. Assistant Engineer
5. Contractor
6. Health and Safety Officer
7. Research Assistant
8. Quality Control Assistant Engineer
9. Material Coordinator
10. Entrepreneur

7.4 Educational Goal

To produce holistic and competent TVET graduates capable of contributing to the national development

7.5 Programme Aim

This programme believes that all individuals have potential to be proactive and responsible senior technicians to support national agenda in transforming construction industry to be highly productive, environmentally sustainable with globally competitive players while focused on safety and quality standards.

7.6 Programme Educational Objectives (PEO)

The Diploma in Civil Engineering programme shall produce semi-professionals who are:

PEO1 : working in the field of civil engineering
PEO2 : lead or a team member to support their role in industries
PEO3 : engaged in activities to enhance knowledge or starting/embark their own enterprise
PEO4 : fulfill professional and communities responsibilities, conforming to ethical and environmental values

7.7 Programme Learning Outcomes (PLO)

Upon completion of the programme, students should be able to:

PLO1 : apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices

PLO2 : identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)

PLO3 : 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 (DK5)

PLO4 : conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements

PLO5 : apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6)

PLO6 : demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7)

PLO7 : understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7)

PLO8 : understand and commit to professional ethics and responsibilities and norms of technician practice

PLO9 : function effectively as an individual, and as a member in diverse technical teams

PLO10 : communicate effectively on well-defined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions

PLO11 : demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments

PLO12 : recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge

8.0 PROGRAMME STRUCTURE FOR DIPLOMA IN CIVIL ENGINEERING

Table 4 : Programme Structure For Diploma In Civil Engineering

	Semester/ Year Offered	Name and Code of Course/Module	Classification (Major/Minor/ Elective/Audit)	Credit Values	Lecture	Practical / Lab	Tutorial	Others	Pre Requisite / Co-Requisite
SEMESTER 1 / YEAR 1									
1	1/1	MPU21032 Penghayatan Etika dan Peradaban	Compulsory	2	1	0	2	0	
2	1/1	DUE10012 Communicative English 1	Compulsory	2	1	0	2	0	
3	1/1	MPU24XX1 Sukan *** MPU24XX1 Unit Beruniform 1 ***	Compulsory	1	0	2	0	0	
4	1/1	DUW10022 Occupational, Safety & Health for Engineering	Common Core	2	2	0	0	0	
5	1/1	DBS10012 Engineering Science	Common Core	2	2	1	0	0	
6	1/1	DBM10013 Engineering Mathematics 1	Common Core	3	2	0	2	0	
7	1/1	DCC10012 Engineering Drawing And Computer Aided Drafting (CAD)	Discipline Core	2	0	4	0	0	
8	1/1	DCC10022 Brickworks And Concrete Laboratory	Discipline Core	2	0	3	0	0	
9	1/1	DCC10032 Civil Engineering Material	Discipline Core	2	2	0	0	0	
			Total	**18**	**26**				
SEMESTER 2 / YEAR 2									
10	2/1	MPU23052 Sains, Teknologi Dan Kejuruteraan Dalam Islam* MPU23042 Nilai Masyarakat Malaysia**	Compulsory	2	1	0	2	0	
11	2/1	MPU24XX1 Kelab/Persatuan*** MPU24XX1 Unit Beruniform 2	Compulsory	1	0	2	0	0	MPU24XX1
12	2/1	DBM20023 Engineering Mathematics 2	Common Core	3	2	0	2	0	DBM10013
13	2/1	DCC20042 Plumbing And Carpentry Workshop	Discipline Core	2	0	3	0	0	
14	2/1	DCC20053 Mechanics Of Civil Engineering Structures	Discipline Core	3	3	0	1	0	
15	2/1	DCC20063 Engineering Survey	Discipline Core	3	2	3	0	0	

16	2/1	DCC20073 Contract And Estimating	Discipline Core	3	3	0	1	0	
			Total	**17**	**25**				
SEMESTER 3 / YEAR 2									
17	3/2	DUE30022 Communicative English 2	Compulsory	2	1	0	2	0	DUE10012
18	3/2	MPU22012 Entrepreneurship	Compulsory	2	1	0	2	0	
19	3/2	DCC30082 Introduction To Industrialised Building System (IBS)	Discipline Core	2	0	4	0	0	
20	3/2	DCC30093 Geotechnical Engineering	Discipline Core	3	3	0	1	0	
21	3/2	DCC30103 Highway And Traffic Engineering	Discipline Core	3	3	0	1	0	
22	3/2	DCC30112 Geotechnical And Highway Laboratory	Discipline Core	2	0	3	0	0	
23	3/2	DCC30122 Fluid Mechanics	Discipline Core	2	2	0	1	0	
			Total	**16**	**24**				
SEMESTER 4 / YEAR 2									
24	4/2	DUE50032 Communicative English 3	Compulsory	2	1	0	2	0	DUE30022
25	4/2	DCC40132 Project Management and Practices	Discipline Core	2	2	1	0	0	
26	4/2	DCC40142 Steel Structural Design	Discipline Core	2	2	1	0	0	DCC20053
27	4/2	DCC40152 Water Supply and Waste Water Engineering	Discipline Core	2	2	0	1	0	
28	4/2	DCC40163 Theory Of Structures	Discipline Core	3	3	0	1	0	DCC20053
29	4/2	DCC40172 Structure, Hydraulics and Water Quality Laboratory	Discipline Core	2	0	3	0	0	
30	4/2	DCC40181 Final Year Project 1	Discipline Core	1	0	2	0	0	
31	4/2	Electives 1	Electives	2	0	4	0	0	
			Total	**16**	**25**				
SEMESTER 5 / YEAR 3									
32	5/3	DCC50194 Final Year Project 2	Discipline Core	3	1	5	0	0	
33	5/3	DCC50203 Reinforced Concrete Design	Discipline Core	3	3	0	1	0	
34	5/3	DCC50212 Hydrology	Discipline Core	3	3	0	1	0	
35	5/3	DCC50222 Hydraulics	Discipline Core	3	3	0	1	0	DCC30122
36	5/3	DCC50232 Engineering in Society	Discipline Core	2	2	0	0	0	
37	5/3	Electives 2	Electives	2	2	0	0	0	
			Total	**15**	**22**				

SEMESTER 6 / YEAR 3									
38	6/3	DUT600610 Industrial Training	Compulsory	10	0	0	0	0	
			Total	**10**	**0**				
			Total Credit Value	**92**					
1		DCC50242 Building Information Modeling (BIM)	Elective	2	0	4	0	0	
2		DCC50252 Building Services	Elective	2	2	0	0	0	
3		DCC50262 Environmental Pollution & Control	Elective	2	2	0	0	0	
Elective course can be taken at semester 4 and semester 5 (4 credit)									
1		DUD10012 Design Thinking	Free Electives*	2	1	0	0	1	

		Total Credit	%
i.	Compulsory	14	15%
ii.	Common Core	10	11%
iii.	Discipline Core	54	59%
iv.	Elective	4	4%
v.	Industrial Training	10	11%
Total		**92**	**100%**

Legend:
*For Muslim Students
**For Non Muslim Students

Notes:
Free Electives are courses which are not included in any programme structure but if taken, will contribute towards students' CGPA, provided that institutions adhere to the Jabatan Pendidikan Politeknik & Kolej Komuniti Free Electives Guidelines.

Clusters:
a. CLS1 : Knowledge & Understanding
b. CLS2 : Cognitive Skills
c. CLS3a : Practical Skills
d. CLS3b : Interpersonal & Communication Skills
e. CLS3c : Digital & Numeracy Skills
f. CLS3d : Leadership, Autonomy & Responsibility
g. CLS4 : Personal & Entrepreneurial Skills
h. CLS5 : Ethics & Professionalism

9.0 COURSES LIST AND COURSES ASSESSMENT

COURSE : MPU21032 PENGHAYATAN ETIKA DAN PERADABAN
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SINOPSIS
PENGHAYATAN ETIKA DAN PERADABAN ni menjelaskan tentang konsep etika daripada perspektif peradaban yang berbeza. Ia bertujuan bagi mengenal pasti sistem, tahap perkembangan, kemajuan dan kebudayaan merentas bangsa dalam mengukuhkan kesepaduan sosial. Selain itu, perbincangan dan perbahasan berkaitan isu-isu kontemporari dalam aspek ekonomi, politik, sosial, budaya dan alam sekitar daripada perspektif etika dan peradaban dapat melahirkan pelajar yang bermoral dan profesional. Penerapan amalan pendidikan berimpak tinggi (HIEPs) yang bersesuaian digunakan dalam penyampaian kursus ini.

HASIL PEMBELAJARAN KURSUS (CLO)
Di akhir kursus ini, pelajar akan dapat :
1. Membentangkan konsep etika dan peradaban dalam kepelbagaian tamadun. (A2, CLS 5)
2. Menerangkan sistem, tahap perkembangan, kesepaduan sosial dan kebudayaan merentas bangsa di Malaysia. (A2, CLS 5)
3. Mencadangkan sikap yang positif terhadap isu dan cabaran kontemporari dari perspektif etika dan peradaban. (A3, CLS 4)

PENTAKSIRAN
Pentaksiran kursus terbahagi kepada dua iaitu :

i. Pentaksiran Kerja Kursus (KK) — 100%
Pentaksiran Kerja Kursus mengukur pengetahuan, kemahiran prektikal dan kemahiran insaniah yang menyumbang kepada pentaksiran berterusan. Markah keseluruhan pentaksiran kerja kursus terdiri daripada markah pengetahuan dan praktikal sahaja tidak termasuk markah kemahiran insaniah.

KAEDAH PENTAKSIRAN UNTUK KERJA KURSUS		
Pembentangan	e-Folio	Projek
30%	**30 %**	**40 %**

COURSE : DUE10012 COMMUNICATIVE ENGLISH 1
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SYNOPSIS
COMMUNICATIVE ENGLISH 1 focuses on developing students speaking skill to enable them to communicate effectively and confidently in group discussions and in a variety of social interactions. It is designed to provide students with appropriate reading skills to comprehend a variety of texts, The students are equipped with effective presentation skills as a preparation for academic and work purpose.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Participate in a discussion using effective communication and social skills to reach an amicable conclusion by accommodating differing views and opinions. (A3, CLS 3b)
2. Demonstrate awareness of values and opinions embedded in texts on current issues. (A3, CLS 3b)
3. Present a topic of interest that carries identifiable values coherently using effective verbal and nonverbal communication skills. (A2, CLS 4)

ASSESSMENT
The course assessment comprises two components, namely:

i. Coursework Assessment (CA) — 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessment total score comprises of knowledge and practical marks **ONLY.** It does not include the mark of generic skills.

ii. Final Examination (FE) — NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK ASSESSMENT			
Group Discussion	Test	Assignment	Oral Presentation
20%	**20%**	**30%**	**30%**

COURSE : **DUW10022 OCCUPATIONAL SAFETY AND HEALTH FOR ENGINEERING**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
OCCUPATIONAL SAFETY AND HEALTH course is designed to impart understanding of the self-regulatory concepts and provisions under; the Occupational Safety & Health Act (OSHA). This course presents the responsibilities of employers and employees in implementing and complying with the safety procedures at work. Understanding of notifications of accident, dangerous occurrence, poisoning and diseases and liability for offences will be imparted upon students.This course will also provide an understanding of the key issues in OSH management, incident prevention, fire safety, Hazard Identification Risk Control and Risk Assessment (HIRARC) , Workplace Environment and Ergonomics and guide the students gradually into this multi-disciplinary science.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Explain briefly Occupational Safety and Health (OSH) procedures, regulation and its compliance in Malaysia. (C2, PLO1)
2. Initiates incident hazards, risks and safe work practices in order to maintain health and safe work environment. (A3, PLO8)
3. Demonstrate communication skill in group to explain the factor that can lead to accident in workplace. (A3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) - 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of knowledge and practical marks **ONLY.** It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK				
Theory Test	Quiz	Case Study 1	Case Study 2	Presentation
25%	**15%**	**20%**	**20%**	**20%**

COURSE : **DBM10013 ENGINEERING MATHEMATICS 1**
CREDIT(S) : **3**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
ENGINEERING MATHEMATICS 1 exposes students to the basic algebra including resolve partial fractions. This course also covers the concept of trigonometry and the method to solve trigonometry problems by using basic identities, compound angle and double angle formulae. Students will be introduced to the theory of complex number and concept of vector and scalar. Students will explore advanced matrices involving 3x3 matrix.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Use mathematical statement to describe relationship between various physical phenomena. (C3, CLS1)
2. Show mathematical solutions using the appropriate techniques in mathematics .(C3, CLS 3c)
3. Use mathematical expression in describing real engineering problems precisely, concisely and logically. (A3, CLS 3b)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) — 60%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY.** It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) — 40%
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Quiz	Test	Presentation	End of chapter
10%	**15%**	**15%**	**20%**

COURSE : **DBS10012 ENGINEERING SCIENCE**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
ENGINEERING SCIENCE course introduces the physical concepts required in engineering disciplines. Students will learn the knowledge of fundamental physics in order to identify and solve engineering physics problems. Students will be able to perform experiments and activities to mastery physics concepts.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Use basic physics concept to solve engineering physics problems. (C3, CLS1)
2. Apply knowledge of fundamental physics in activities to mastery physics concept. (C3, CLS 1)
3. Perform appropriate activities related to physics concept. (P3, CLS 3a)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) — 60%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of knowledge and practical marks **ONLY.** It does not include the mark of generic skills.
iii. Final Examination Assessment (FE) — 40%
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK		
Test	Lab Work	Mini Project
20%	**15%**	**25%**

COURSE : **DCC10012 ENGINEERING DRAWING AND COMPUTER AIDED DRAFTING(CAD)**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
ENGINEERING DRAWING AND COMPUTER AIDED DRAFTING cover the basic manual drafting of technical drawing to enhance engineering student ability to communicate ideas in modern technology industry. It provides a platform for student to interpret engineering drawings, use CAD and develop their skills in technical sketching. Student should be able to produce engineering drawing using manual graphics sketchimg and CAD software related to IR4.0.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Display ability to produce basic engineering drawing using appropriate tool and equipment correctly. (P3, PLO5)
2. Builds 2D plan in engineering drawing approriately. (P4 PLO5)
3. Present an understanding of drawing process in mini project presentation verbally. (A3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Laboratory Assignment	Practical Test	Presentation	Mini Project
30%	**20%**	**20%**	**30%**

COURSE : **DCC10032 CIVIL ENGINEERING MATERIALS**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
Civil Engineering Materials course is designed to equip students with a comprehensive knowledge and skill related to construction materials in civil engineering. It will emphasizes on types and function of cement, the function of aggregates in concrete, water, admixtures, properties of fresh and hardened concrete, concrete mix design and manufacturing concrete on site. This course also focused on the properties of timber, types and characteristics of brick and concrete block, steel and non-steel, the types and function of building finishes materials and the introduction to building elements.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Apply fundamental concept and behaviour of different types of material in civil engineering construction.(C3,PLO1)
2. Present orally the usage of construction material in a particular project using visual aids appropriately. (A3, PLO10)
3. Display ability to search various resources about current construction material to assigned topic.(C2,PL1216)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Assignment	Presentation
20%	**10%**	**10%**	**10%**

COURSE : **DCC10022 BRICKWORKS AND CONCRETE**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
BRICKWORKS AND CONCRETE LABORATORY covers a basic concept of practical works and principles regarding the brickworks and concrete works including the safety exposure in workshop. This course emphasizes the related brick laying using mortar mixing 1:3 and student needed to complete a selected mini project.
As for concrete works the method of statement for concrete which referred is BS1881. The cement to be used throubhout the work shall be Portland cement obtained from an approved manufacturers that comply with MS 522. Fine and course aggregates shall comply with MS29. All testing specification were referred by MS EN 206. This course also need students to participate actively in teamwork during the practical activities.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Perform practical activities using appropriate tools and techniques for concrete works with safety awareness. (P3, PLO5)
2. Complete a selected mini project in brickworks through group participation (P5, PLO5)
3. Participate actively in a teamwork during practical activities. (A3, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK	
Workshop practical	Project
50%	**50%**

KURSUS : MPU23052 - SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM
KREDIT : 2
PRASYARAT : TIADA

SINOPSIS
SAINS, TEKNOLOGI DAN KEJURUTERAAN DALAM ISLAM memberi pengetahuan tentang konsep Islam sebagai al Din dan seterusnya membincangkan konsep sains, teknologi dan kejuruteraan dalam Islam serta impaknya, pencapaiannya dalam tamadun Islam, prinsip serta peranan syariah dan etika Islam, peranan kaedah fiqh serta implikasinya.

HASIL PEMBELAJARAN KURSUS (CLO)
Di akhir kursus ini, pelajar akan dapat :
1. Melaksanakan dengan yakin ajaran Islam dalam kehidupan seharian. (A2 , CLS 4)
2. Menerangkan etika dan profesionalisme berkaitan sains, teknologi dan kejuruteraan dalam Islam. (A3 , CLS 5)
3. Menghubungkait minda ingin tahu dengan prinsip syariah, etika dan kaedah fiqh, dalam bidang sains, teknologi dan kejuruteraan menurut perspektif Islam. (A4 , CLS 4)

PENTAKSIRAN
Pentaksiran kursus terdiri adalah :
i. Pentaksiran Kerja Kursus (KK) — 100%
Pentaksiran Kerja Kursus mengukur pengetahuan, kemahiran praktikal dan kemahiran insaniah yang menyumbang kepada pentaksiran berterusan. Markah keseluruhan pentaksiran kerja kursus terdiri daripada markah pengetahuan dan praktikal sahaja tidak termasuk markah kemahiran insaniah.

KAEDAH PENTAKSIRAN UNTUK KERJA KURSUS			
Tunjukcara	Pembentangan	e-folio	Tugasan berdasarkan masalah
20%	**20%**	**30%**	**30%**

KURSUS : MPU 23042 NILAI MASYARAKAT MALAYSIA
KREDIT : 2
PRASYARAT : TIADA

SINOPSIS
NILAI MASYARAKAT MALAYSIA membincangkan aspek sejarah pembentukan masyarakat, nilai-nilai agama, adat resam dan budaya masyarakat di Malaysia. Selain itu, pelajar dapat mempelajari tanggungjawab sebagai individu dan nilai perpaduan dalam kehidupan di samping cabaran- cabaran dalam membentuk masyarakat Malaysia.

HASIL PEMBELAJARAN KURSUS (CLO)
Di akhir kursus ini, pelajar akan dapat :
1.Membincangkan sejarah dan nilai dalam pembentukan masyarakat di Malaysia (A2 , CLS 4)
2.Menerangkan etika dan profesionalisme terhadap konsep perpaduan bagi meningkatkan semangat patriotisme masyarakat Malaysia (A3, CLS 5)
3.Menghubungkait minda ingin tahu dengan cabaran-cabaran dalam membentuk masyarakat Malaysia (A4, CLS 4)

PENTAKSIRAN
Pentaksiran kursus adalah :
i **Pentaksiran Kerja Kursus (KK) — 100%**
Pentaksiran Kerja Kursus mengukur pengetahuan, kemahiran praktikal dan kemahiran insaniah yang menyumbang kepada pentaksiran berterusan. Markah keseluruhan pentaksiran kerja kursus terdiri daripada markah pengetahuan dan praktikal sahaja tidak termasuk markah kemahiran insaniah.

KAEDAH PENILAIAN UNTUK KERJA KURSUS			
Perbincangan	Pembentangan	E-folio	Tugasan berdasarkan masalah
20%	**20%**	**30%**	**30%**

COURSE : DBM20023 ENGINEERING MATHEMATICS 2

CREDIT(S) : 3
PRE REQUISITE(S) : NONE

SYNOPSIS
ENGINEERING MATHEMATICS 2 exposes students to the basic laws of indices and logarithms. This course introduces the basic rules of differentiation concepts to solve problems that relates maximum, minimum and calculate the rates of changes. This course discusses integration concepts in order to strengthen student's knowledge for solving area and volume bounded region problems. In addition, students will learn application of both techniques of differentiation and integration.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Use algebra and calculus knowledge to describe relationship between various physical phenomena. (C3, CLS 1)
2. Solve the mathematical problems by using appropriate and relevant fundamental calculus techniques.(C3, CLS 3c)
3. Use mathematical language to express mathematical ideas and arguments precisely, concisely and logically in calculus. (A3, CLS 3b)

ASSESSMENT
The course assessment comprises two components, namely:
i. **Coursework Assessment (CA) — 60%**
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. **Final Examination Assessment (FE) — 40%**
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Quiz	Test	End of Chapter	Presentation
10%	**15%**	**20%**	**15%**

COURSE : DCC20042 PLUMBING AND CARPENTRY WORKSHOP
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SYNOPSIS
PLUMBING AND CARPENTRY WORKSHOP covers basic practical works of plumbing and carpentry works. This course emphasizes the related materials used and active participation of student to produce simple project.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Assembly appropriate tools and techniques for plumbing works with safety awareness. (P3, PLO5)
2. Complete a mini project for carpentry works within a given time frame. (P5, PLO7)
3. Participate activelyin a team work during practical activities. (A3, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) – NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK	
Practical Test	Project
50%	**50%**

COURSE : DCC20053 MECHANICS OF CIVIL ENGINEERING STRUCTURES
CREDIT(S) : 3
PRE REQUISITE(S) : NONE

SYNOPSIS
MECHANICS OF CIVIL ENGINEERING STRUCTURES covers knowledge of facts and basic principles of types of forces, strength of materials and behavior of loaded structures. This course provides exposure to the impact of loaded structures on direct and shear stresses, slope and deflection. This exposure will be the pre requisite to understand other courses in Civil Engineering.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. apply the fundamental knowledge and principles of mechanic structure in civil engineering (C3, PLO1)
2. analyze structure behavior in determinate structure based on the problem given. (C4, PLO2)
3. construct the diagram related to stress and deflection of determinate beam .(P3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) – 50%
Final examination is carried out at the end of semester.

ASSESSMENT METHODS FOR COURSEWORK		
Test	Quiz	Assignment
20%	**10%**	**20%**

COURSE : DCC20073 CONTRACT AND ESTIMATING
CREDIT(S) : 3
PRE REQUISITE(S) : NONE

SYNOPSIS
CONTRACT AND ESTIMATING is a study of construction industry in general, tender procedure, contract procedure, preliminary estimating method, build-up rate and quantity measurement. The module emphasis on contract condition and to provide exposure to the students regarding the procedures and standard practice in the construction field based on Standard Form of Contract (P.W.D. Form 203/203A).

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Explain the fundamental concepts of construction industrial in general, tender procedures and contract procedure in Malaysia. (C3, PLO1)
2. Estimate the cost of construction project by using preliminary estimating method, build-up rate method and quantity measurement. (C4, PLO2)
3. Describe the understanding of the professional engineering ethics and practice based on Stamdard Form of Contract (P.W.D Form 203/203A) efficiently.. (A3, PLO8)
4. Perfume efficient management of time and resources yhrough quantity nesaurement and built-up rate in accordance with Public Work Departmen Practice. (A5, PLO11)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Assignment	Project
20%	**5%**	**10%**	**15%**

COURSE : DCC20063 ENGINEERING SURVEYING
CREDIT(S) : 3
PRE REQUISITE(S) : NONE

SYNOPSIS
ENGINEERING SURVEYING focus on the basic principles of levelling and total station tranverse survey. This course emphasizes the basic distance measurement, bearing and angle in order to get the shape of terrain and the position on the field. It also gives knowledgeand practical skills to students in operating and handling survey instruments, control survey, detailed survey, data collection or acquisition, calculation and plotting of survey works. The course emphasis on the method used to carry out surveying works especially data collection or acquisition to produce plan based on the scope of work. It also gives exposure to the need for accurate data to be used for other surveying work.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Apply correctly the fundamental principle and practices of surveying work. (C3, PLO1)
2. Perfom Civil Engineering Survey works using appropriate instrument based on standard procedure and current surveying instrument. (P3, PLO5)
3. Initiate positive leadership and teams work by contributing actively in groups during fieldwork that yield valid results. (A3, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) – NONE
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK				
Test	Quiz	Field work	Individual report	Practical Test
30%	**10%**	**30%**	**20%**	**10%**

COURSE : DUE30022 COMMUNICATIVE ENGLISH 2
CREDIT(S) : 2
PREREQUISITE(S) : DUE1012 COMMUNICATIVE ENGLISH 1

SYNOPSIS
COMMUNICATIVE ENGLISH 2 emphasises the skills required at the workplace to describe products or services as well as processes or procedures. This course will also enable student to make and reply to enquiries and complaint.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Describe products or services effectively by highlighting its features and characteristics that appeal to a specific audience. (A3, CLS 3b)
2. Describe processes, procedures and instruction clearly by highlighting information of concern. (A3, CLS 4)
3. Demontstrate effective communicative and social skills in handling enquiriese and complaints amicably and professionally. (A3, CLS 3b)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) — 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessment total score comprises of knowledge and practical marks ONLY. It does not include the mark of generic skills.
ii. Final Examination (FE) — NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK ASSESSMENT			
Oral Presentation	Test	Assignment	Role Play
30%	**20%**	**20%**	**30%**

COURSE : **MPU22012 ENTREPRENEURSHIP**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
ENTREPRENEURSHIP focuses on the fundamentals and concept of entrepreneurship in order to inculculate the value and interest in students to choose entrepreneurshipas a career this course can help students ti initiate creative and innovative entrepreneurial ideas. It also emphasizes a preparation of a business plan framework through business model canvas.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Explain clearly the concept of entrepreneurship, process and procedures involved in developing effective business plan. (A3, CLS 3b)
2. Develop a viable business plan by organizing business objective according to priorities. (A4, CLS4)
3. Organize the online presence business in social media marketing platform. (A3, CLS 4)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination (FE) – None
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK		
Product Pitching	Business Plan Presentation	Online Business report
35%	**30%**	**35%**

COURSE : **DCC30082 INDUSTRIALISED BUILDING SYSTEM (IBS) IN SUSTAINABLE CONSTRUCTION**

CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
IBS IN SUSTAINABLE CONSTRUCTION is designed to equip student the concept of Industrialised Building System (IBS) in conjunction with sustainability of the construction industry. This course teaches on elements such as Modular Coordination and IBS Score, site management and supervision and installation of IBS components. This will also include practical work in assembling green system, supervision and quality checking in IBS construction and also installation of IBS in a small scale project pertaining to sustainable construction.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Assemble suitable green materials and Industrialised Building System (IBS) components with supervision. (P3, PLO5)
2. Construct green system and IBS component with compliance to measurement of Modular Coordination and IBS Score. (P4, PLO5)
3. Demonstrate punctuality and responsibility in completing task of assembling green system and IBS. (A3, PLO8)
4. Organize time and resources efficiently in site management. (A5, PLO11)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK		
Practical work	Mini Project	Presentation
40%	**40%**	**20%**

COURSE : **MPU22012 ENTREPRENEURSHIP**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
ENTREPRENEURSHIP focuses the principles and concept of entrepreneurship. This course concentrates on the systematic methods of getting business ideas. This course also prepares the students on ways to conduct and control the business including fundamental of management, marketing and financing. It also emphasizes on the preparation of business plan, thus developing the entrepreneurial skills.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Explain clearly the concept of entrepreneurship, process and procedures involved in developing effective business plan. (C2, LD1)
2. Work cooperatively in group to complete the assigned project based on entrepreneurial skills. (P3, LD2) (A3, LD7)
3. Present business plan creatively using knowledge gained via group. (A2, LD3)

ASSESSMENT
The course assessment comprises two components, namely:
iii. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
iv. Final Examination (FE) – None
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK				
Test	Quiz	Case Study	Project	Presentation
15%	**10%**	**5%**	**50%**	**20%**

COURSE : **DCC30093 GEOTECHNICAL ENGINEERING**
CREDIT(S) : **3**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
GEOTECHNICAL ENGINEERING covers basic knowledge of the process of soils and rock formation and the characteristics of soil. It also covers soil improvement works include compaction, shear strength, seepage, slope stability, lateral earth pressure and foundation.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. Apply fundamental of engineering properties of soils in civil engineering works. (C3, PLO1)
2. Analyze geotechnical engineering problem using appropriate method and formulae in determination of safe and stable earthworks and geotechnical structures. (C4, PLO2)
3. Analze data to reach conclusion on assigned topic of case study. (C4, PLO4)
4. Explain verbally in formal presentation based on assign topic. (A3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT METHODS FOR COURSEWORK			
Test	Case study	Assignment	Presentation
20%	**15%**	**10%**	**5%**

COURSE : **DCC30103 HIGHWAY AND TRAFFIC ENIGINEERING**
CREDIT(S) : **3**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
HIGHWAY AND TRAFFIC ENIGINEERING is a study on history of highway construction and the organization involved in Malaysia. This course also provides the students with the knowledge regarding the method and design involved in traffic engineering. This course emphasizes on introduction to highway and traffic, transportation planning, pavement materials, construction of flexible pavement, construction of rigid pavement, traffic control equipment and road furniture, flexible pavement design, junction design, traffic management and highway maintenance.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Apply appropriate model to solve problem in highway and traffic engineering. (C3, PLO1)
2. Assesses design performance for highway and traffic engineering based on appropriate specification with consideration of public safety, society and environement. (C5, PLO3)
3. Explain the findings of a case study/assign topic in a formal prsentation. (A3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Assignment	Case Study	Presentation
20%	**10%**	**10%**	**10%**

COURSE : **DCC3122 GEOTECHNICAL AND HIGHWAY LABORATORY**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
GEOTECHNICAL AND HIGHWAY LABORATORY cover knowledge in the form of practical through the experiments which are carried out based on the concepts and the theories learned in the class. The emphasis of the course is on the concepts and the theories learned in the class. The emphasis of the course is on the method of conducting experiment, analysis and understanding its relationship with theories learned. The course also focused on the geotechnical and highway which are the core of the civil engineering field.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to;
1. Construct appropriate instrumentation/measurement techniques/models/simulation in geotechnical and highway engineering using standard procedure and equipment. (P3, PLO5)
2. Practices the importance of achieving safety in geotechnical and highway according to OSH standard. (A4, PLO6)
3. Analyse laboratory result in achieving objective of geotechnical and highway using engineering report standard. (C4, PLO4)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) – NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASK FOR COURSEWORK		
Laboratory Report	Laboratory Safety	Laboratory Practical
30%	**10%**	**60%**

COURSE : **DCC30122 FLUID MECHANICS**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS

FLUID MECHANICS covers the behaviour and characteristics of engineering fluids and their application in hydrostatic and dynamic fluids. This course involves discussion on fluid properties, fluid static, fluid flow concept and basic equations, moving fluid forces, dimensional analysis, flow in closed conduits and pipe network, stability and buoyancy and momentum equations.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Explain the fundamental and principles in fluid mechanics engineering. (C2, PLO1)
2. Determine the principles of fluid mechanics engineering in pipe flow appropriately. (C4, PLO2)
3. Describe verbally the fundamental and principles in fluid mechanics engineering. (A3, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Assignment	Presentation
20%	**5%**	**20%**	**5%**

COURSE : **DUE50032 COMMUNICATIVE ENGLISH 3**
CREDIT(S) : **2**
PRE REQUISITE(S) : **DUE30022 COMMUNICATIVE ENGLISH 2**

SYNOPSIS
COMMUNICATIVE ENGLISH 3 aims to develop the necessary skills in students to carry out a mini project as well as job hunting. Students will learn to present ideas through the use of graphs and charts. Students will learn the process of job hunting which includes job search strategies and making enquiries. They will also learn to write resumes and cover letters. The students will develop skills to introduce themselves, highlight their strengths and abilities, present ideas, express opinions and respond appropriately during job interviews.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Present gathered data in graphs and form effectively using appropriate language forms and functions. (A2, CLS 3b)
2. Prepare a high impact resume and cover letter, highlighting competencies and streghts that meet employer's expectation. (A4, CLS 4)
3. Demonstrate effective communication and social skills in handling job interviews confidently. (A3, CLS 3b)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) – NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK				
Test	Presentation	Written Task		Mock Interview
		Resume	Cover Letter	
15%	**20%**	**15%**	**15%**	**35%**

COURSE : **DCC40132 PROJECT MANAGEMENT AND PRACTICES**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
PROJECT MANAGEMENT AND PRACTICES focuses on the basic knowledge and understanding of project management. Student s will be introduced to the definition and basic concept of project management and practices. Every aspect in project management is explained starting from the overview of project management, the influences of organizational structures in project management, project lifecycle, resources in project management, planning and scheduling, project control and monitoring, safety control, environmental management plan and quality assurance in project management. The application of common software such as Microsoft Project for planning and scheduling also will be exposed to the student.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Apply correctly the fundamental engineering concepts of project management. (C3, PLO1)
2. Manipulated appropriate techniques and software tool for planning and scheduling related to civil engineering activities. (P3, PLO5)
3. Perform efficient management of time and resources in civil engineering field. (A2, PLO11)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Assignment	Mini Project
15%	**5%**	**10%**	**20%**

COURSE : **DCC40142 STEEL STRUCTURE DESIGN**
CREDIT(S) : **2**
PRE REQUISITE(S) : **DCC20053 MECHANICS OF CIVIL ENGINEERING STRUCTURES**

SYNOPSIS
STEEL STRUCTURE DESIGN covers fundamental concepts and basic principles required for design of steel structure including beam, column, roof truss and connections. This course enable student to develop understanding a basic knowledge related to the theoretical background for the design of steel structures and the practical expertise to translate this background knowledge into successfully performing actual design calculations according to Eurocode 3 (EC3) for a single storey steel building.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Design single storey building for steel structure correctly according to Eurocodes 3. (C6, PLO3)
2. Create the design output drawing for single storey steel structure design according to Eurocode 3 using current software. (P5, PLO5)
3. Adhere to the engineering ethic through presentation. (A4, PLO 8)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) - 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Assignment	Design Project	Presentation
35%	**30%**	**30%**	**5%**

COURSE : **DCC40152 WATER SUPPLY AND WASTE WATER ENGINEERING**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
WATER SUPPLY & WASTE WATER ENGINEERING is a study of water resources, water characteristics, usage and demand of water supply, raw water treatment process and water distribution system. This course also includes the information on the process in sewage treatment plant, sludge treatment and disposal. It also emphasize on the parameter of drinking water and effluent from sewage treatment plant.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Apply the concept of water supply and wastewater treatment according to reated and current standard. (C3, PLO1)
2. Explain verbally in formal presentation based on given task. (A5, PLO10)
3. Determine the sustainability and impact of environmental issues regarding to water and wastewater treatment. (C5, PLO7)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Presentation	Case study
20%	**10%**	**5**	**15%**

COURSE : **DCC40163 THEORY OF STRUCTURES**
CREDIT(S) : **3**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
THEORY OF STRUCTURE covers basic knowledge of facts and principles in calculate the reactions, bending moments and shear forces for statically indeterminate beams and portal frame using the slope deflection method and moment distribution method. It also includes basic principles analyse the forces in truss members using the equilibrium joint method for the statically determine and using unit load method for the statically indeterminate trusses. Influence lines have important application for the design of structures that resit large live loads. Evaluation in influence lines include determination of shear force, bending moment and the absolute maximum moment.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Calculate statically indeterminate beams and portal frame using appropriate method. (C3, PLO1)
2. Analyze joint displacement in statically determinate trusses and internal forces for statically indeterminate trusses correctly (C4, PLO2)
3. Evaluate the influence lines for statically determinate beams correctly. (C5, PLO2)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) – 50%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) –50%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK		
Theory Test	Quiz	Assignment
20%	**10%**	**20%**

COURSE : **DCC40172 STRUCTURE, HYDRAULICS AND WATER QUALITY LABORATORY**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
STRUCTURE, HYDRAULICS & WATER QUALITY LABORATORY covers knowledge in the form of practical through the experiments which are carried out based on the concepts and the theories learned in the class. The emphasis of the course is on the method of conducting experiments, analysis and understanding its relationship with the theories learned. It comprises of three civil engineering laboratories. The course also focused on the structure, hydraulics and water quality laboratory which are the core of the civil engineering field.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Construct appropriate instrumentation/measurement techniques/models/simulation in structure, hydraulics and water quality engineering using standard procedure and equipment. (P3, PLO5)
2. Practice the importance of achieving safety in structure, hydraulics, and water quality according to OSH standard. (A4, PLO6)
3. Analyse laboratory result in achieving objective of structure, hydraulics and water quality using engineering report standard. (C4, PLO4)

ASSESSMENT
The course assessment comprises two components, namely:
i. **Coursework Assessment (CA) – 100%**
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. **Final Examination Assessment (FE) – NONE**
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK		
Laboratory Report	Laboratory Safety	Laboratory Practical
30%	**10**	**60%**

COURSE : **DCC40181 FINAL YEAR PROJECT 1**
CREDIT(S) : **1**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
CIVIL ENGINEERING PROJECT 1 covers the knowledge and display practice skills in civil engineering. The student also exposed in communication skills, group works, work planning, decision making, recommendation and creativity using available facilities

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Develop the investigation process in civil engineering based in a clear and concise manner. (C3, PLO4)
2. Complete a presentation for project proposal using an engineering appropriate standard.(A3, PLO10)
3. Propose appropriate methodology in management and resources based on civil engineering project. (A3, PLO11)
4. Display self-education skills in gathering technical information from various resources. (P3, PLO12)

ASSESSMENT
The course assessment comprises two components, namely:
i. **Coursework Assessment (CA) – 100%**
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. **Final Examination Assessment (FE) – NONE**
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Final Presentation	Project Proposal	Log Book	Progress Presentation
10%	**55%**	**25%**	**10%**

COURSE : DCC50194 FINAL YEAR PROJECT 2
CREDIT(S) : 4
PRE REQUISITE(S) : NONE

SYNOPSIS
CIVIL ENGINEERING PROJECT 1 covers knowledge and display practice skills in civil engineering practices. The student will be exposed to communication skills, group works, work planning, decision making, recommendation and creativity using available facilities to a design of a system. This course also covers conducting experiments in the laboratory/workshop, field works, and academic reserches, designing product or method of civil engineering related fields. The student will learn the method to analyze data , prepare presentation and report writing.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Produce preliminary project report based on knowledge and information or civil engineering study according to format given. (P4, PLO5)
2. analyze the project results in achieving objective based on relevant standard and regulation.(C4, PLO4)
3. write the project report based on project finding using appropriate format (C3, PLO10)
4. complete the project presentation confidently and effectively .(A5, PLO10)

ASSESSMENT
The course assessment comprises two components, namely:
iii. Coursework Assessment (CA) – 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
iv. Final Examination Assessment (FE) – NONE
Final Examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK				
Report	Final presentation	Project Task	Log Book	Progress Presentation
40%	**20%**	**15%**	**10%**	**15%**

COURSE : DCC50203 REINFORCED CONCRETE DESIGN
CREDIT(S) : 3
PRE REQUISITE(S) : DCC20053 MECHANICS OF CIVIL ENGINEERING STRUCTURES

SYNOPSIS
REINFORCED CONCRETE DESIGN covers concepts and methods of design for reinforced concrete structures comprising beam and slab . This course emphasizes on knowledge and practice of producing double storey reinforced concrete building design starting from the layout plan, action & analysis, structural design and detailing according to Eurocode 2 (EC2).

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Design double storey building for reinforced concrete structure correctly according to Eurocode 2. (C6, PLO3)
2. Display a safe design for double storey reinforced concrete building according to EC2. (P5, PLO5)
3. Adhere to the engineering ethic to omplete the design task. (A4, PLO8)

ASSESSMENT
The course assessment comprises two components, namely:
i. Coursework Assessment (CA) - 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Assignment	Design Project	Presentation
35%	**30%**	**30%**	**5%**

COURSE : DCC50212 HYDROLOGY
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SYNOPSIS
This course introduces students to the concepts of engineering hydrology including hydrologic cycle and rainfall-runoff processes. Its covers the quantification of rainfall and runoff processes for engineering design, including computation of design rainfalls, peak discharges and hydrographs. The basic concept of Urban Drainage Design and compliance with local guidelines of Urban Storm Water Management Manual for Malysia (MSMA)arediscuss and employ in considering sustainability environmental value.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Apply basic concept of applied hydrology in civil engineering . (C3, PLO1)
2. Solve problem in applied hydrology for civil engineering. (C4, PLO2)
3. Construct hydrological analysis using available software.(P3, PLO7)

ASSESSMENT
The course assessment comprises two components, namely:

i. Coursework Assessment (CA) - 50%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.

ii. Final Examination Assessment (FE) - 50%
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Mini project	Case Study
15%	**10%**	**15%**	**10%**

COURSE : DCC50222 HYDRAULICS
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SYNOPSIS
HYDRAULICS covers the application in hydrostatic and hydrodynamic fluids. This course involves discussion on hydrostatics concept and basic equation of stability and buoyancy. This course also emphasize on the application of constituents of pumps and open channel flow concept appropriately in solving hydraulics problem.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. explain the fundamental and principles in hydraulic engineering. (C3, PLO1)
2. determine the principles of hydraulic engineering in pumps and fluid flow. (C3, PLO2)
3. Demonstrate the ability to work in team to solve problems on uniform and non-uniform open channel flow.(A3, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:

ii. Coursework Assessment (CA) - 50%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.

ii. Final Examination Assessment (FE) - 50%
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK		
Test	Quiz	Assignment
15%	**5%**	**30%**

COURSE : DCC50232 ENGINEERING IN SOCIETY
CREDIT(S) : 2
PRE REQUISITE(S) : NONE

SYNOPSIS
ENGINEERING IN SOCIETY focuses on the introduction to the role of engineers in the context of their employment in industry and their interaction with the wider community. In this course, students will be exposed to safety and health of the public, technology and development in industry of civil engineering. This course also covers the meaning and impacts of engineering in society, ethical decision making, professional codes of ethics and sustainable development in the context of science and engineering application locally and globally. The students will be able to display excellent teamwork skills for working in group projects and organizing the activities of engineering practice in the society.

COURSE LEARNING OUTCOMES (CLO)
Upon completion of this course, students should be able to:
1. discuss the roles of engineering in society and the duries of maintaining health and safety in the workplace. (A2, PLO6)
2. justify the importance of ethical issues and rules of conduct for the profession in civil engineering associated with contemporary technology and environmental protection in civil engineering. (A3, PLO8)
3. display skill of self educationand communication techniques in organizing the activities of engineering practice. (P4, PLO12)

ASSESSMENT
The course assessment comprises two components, namely:
iii. Coursework Assessment (CA) – 100%
Coursework assessment that measures knowledge, practical skills and generic skills are carried out in the form continuous assessment. Coursework assessment total score comprises the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.
iv. Final Examination Assessment (FE) – 0%
Final examination is carried out at the end of semester.

ASSESSMENT TASKS FOR COURSEWORK			
Assignment/role play	Case study	Project report	Presentation(case study,project)
20%	**50%**	**20%**	**10%**

COURSE : DUT600610 ENGINEERING INDUSTRIAL TRAINING
CREDIT(S) : 10
PRE REQUISITE(S) : NONE

SYNOPSIS
ENGINEERING INDUSTRIAL TRAINING course will provide student with first-hand experience in an engineering-practice environment outside the polytechnic. Student will practice their knowledge and skill based on knowledge learned in polytechnic through industry supervision to acquire the craft skill and essential. Student also need to demonstrate their responsibilities and professional ethic, communication, teamwork and inter-personal and life-long learning skills at the workplace.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. perform the assigned task accordingly based on job scope. (P4,PLO 5)
2. demonstrate responsibility as an engineering technician while dealing with peopleof various background. (A5, PLO 6)
3. practice good working ethics while undergoing industrial training. (A5, PLO 8)
4. display ability to work in a team or independently base on the given task. (A4, PLO9)
5. demonstrate oral communication skill in performing job requirement. (A3, PLO10)
6. write a report based on given task accordingly to technical practice. (C3, PLO 10)
7. Display life long learning skill in completing the given task.(P4, PLO 12)

ASSESSMENT (ALL PROGRAMMES EXCEPT DAM AND DKP)

The course assessed through coursework

Coursework (CA)
Coursework is continuous assessment that measures knowledge, practical skills and generic skills. Coursework assessment mark comprises of knowledge and practical marks **ONLY**. The generic skill mark is not part of the coursework assessment mark.
The percentage ratio of FE to CA shall follow the guideline stated in the *Arahan-Arahan Peperiksaan dan Kaedah Penilaian* which is approved by the *Lembaga Peperiksaan dan Penganugerahan Sijil/ Diploma Politeknik*

ASSESSMENT TASKS FOR COURSEWORK				
Industry		**Industrial Lecturer Visitor**	**Instituition**	
Performance Apraisal	Log Book	Student Character Validation	Presentation	Final Industry Trainning Report
50%	**10%**	**10%**	**10%**	**10%**

COURSE : **DCC50262 ENVIRONMENTAL POLLUTION AND CONTROL**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

BUILDING SERVICES focuses on the basic concept and the principles of the system s in a building. The course emphasizes on the electrical installation system, fire prevention system, building transportation system, air conditioning system, maintenance works.

SYNOPSIS
ENVIRONMENTAL POLLUTION AND CONTROL is a study on types and effects of communicable and non-communicable diseases to public health. It also emphasize on the control and monitoring of pollution from water, air and noise and the effects to general health and environment. It also covers the knowledge on management of municipal solid waste and hazardous waste. The students are prepared with the Environmental Quality Act 1974 as the guidelines and procedures in managing environmental pollution.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:

1. Analyze technical concept of environmental pollution problems within environmental pollution problems within environmental sustainability. (C4, PLO4)
2. Determine the integration of sustainable environment element in solving solid waste and hazardouse waste management. (C5, PLO73)
3. Display teamwork in solving environmental problem effectively within community. (A5, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:

i. **Coursework Assessment (CA) - 100%**
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.

ii. **Final Examination Assessment (FE) - NONE**
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Mini project	Assignment	Case Study
30%	**25%**	**20%**	**25%**

COURSE : **DCC50252 BUILDING SERVICES**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
BUILDING SERVICES focuses on the basic concept and the principles of the system s in a building. The course emphasizes on the electrical installation system, fire prevention system, building transportation system, air conditioning system, maintenance works.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:

1. Choose appropriate building services system with consideration of safety procedures, rules and regulations by the authority. (C5, PLO4)
2. Identify building services system with consideration of the environmental impact. (A4, PLO7)
3. Display teamwork in completing a case study of a building services system. (A5, PLO9)

ASSESSMENT
The course assessment comprises two components, namely:

i. Coursework Assessment (CA) - 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.

ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK			
Test	Quiz	Case Study	Assignment
40%	**10%**	**30%**	**20%**

COURSE : **DCC50242 BUILDING INFORMATION MODELLING (BIM)**
CREDIT(S) : **2**
PRE REQUISITE(S) : **NONE**

SYNOPSIS
BUILDING INFORMATION MODELLING focuses on the designing and analysing building models using techniques, resources and BIM tools. Students will be introduced to building models using BIM process fo architectural, structural and plumbing. It covers BIM coordination, clash detection and construction scheduling. This course is a project-based where students gain knowledge and skills on the implementation of BIM concepts from planning to design stage.

COURSE LEARNING OUTCOME (CLO)
Upon completion of this course, students should be able to:
1. Contruct building models using techniques, resource and BIM tools for basic modelling correctly. (P3, PLO5)
2. Build building models using techniques, resources and BIM tools of 3D model in architecture, structure and plumbing appropriately. (P4, PLO5)
3. Propose BIM coordination of 3D model consistent with engineering ethics appropriately. (A3, PLO8)
4. Perfume 5D (costing) in project management efficiently. (A5,PLO11)

ASSESSMENT
The course assessment comprises two components, namely:

i. Coursework Assessment (CA) - 100%
Coursework assessments that measures knowledge, practical skills and generic skills are carried out in the form of continuous assessment. Coursework assessments total score comprises of the knowledge and practical marks **ONLY**. It does not include the mark of generic skills.

ii. Final Examination Assessment (FE) - NONE
Final examination is carried out at the end of the semester.

ASSESSMENT TASKS FOR COURSEWORK		
Laboratory Work	Mini project	Presentation
40%	**50%**	**10%**

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