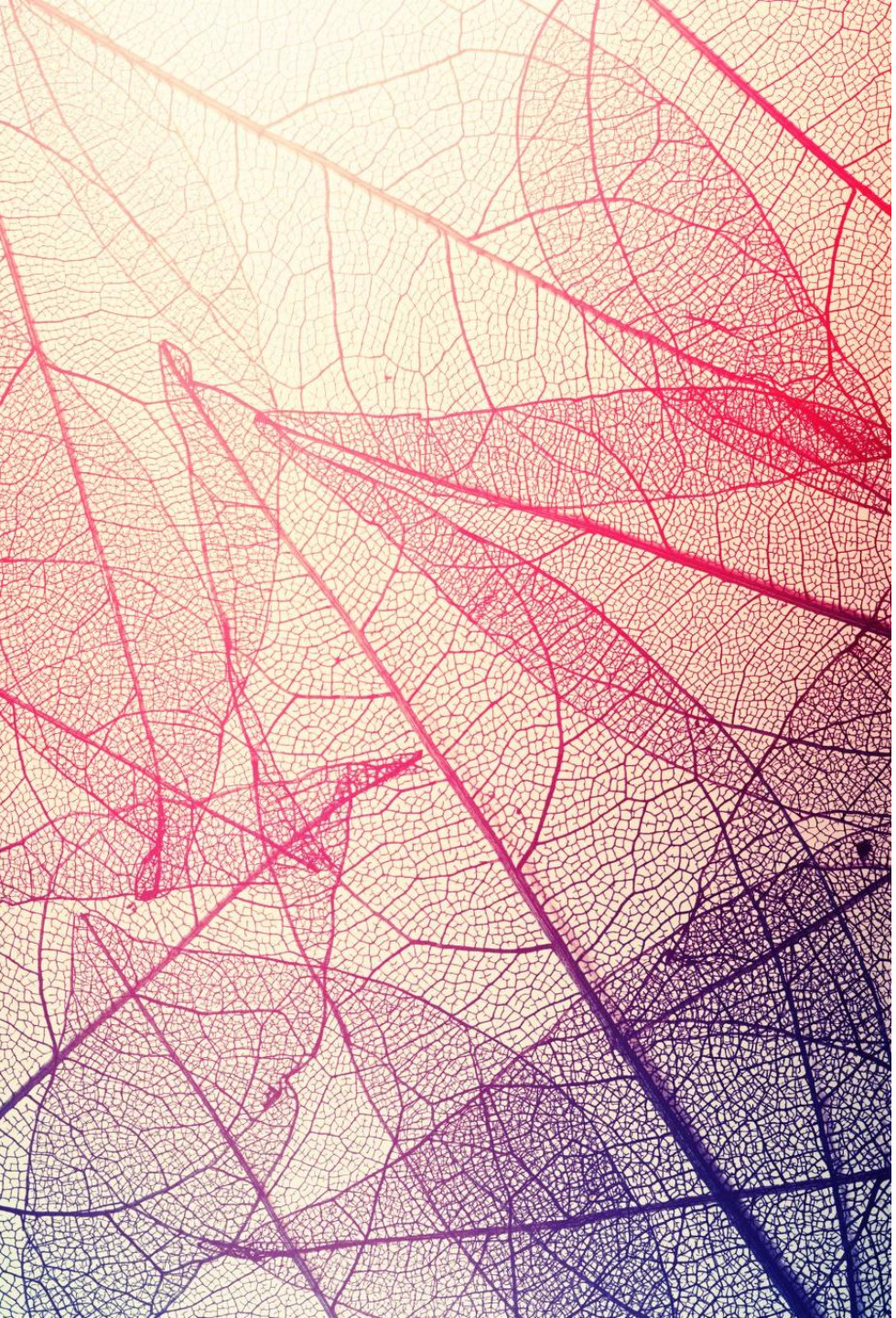


BENGKEL OBE, CQI

&

PEMBINAAN ITEM BERKUALITI GAPC DKDPNA

DIPLOMA KEJURUTERAAN AWAM, PTSB
26.02.2024

بسم الله الرحمن الرحيم

BEKERJALAH DENGAN AMANAH.
AMANAH DENGAN MASA, HARTA, JAWATAN DAN PERIHAL KERAHSIAAN.

“Wahai orang-orang yang beriman! Janganlah kamu mengkhianati (amanah) Allah dan Rasulnya, dan (janganlah) kamu mengkhianati amanah-amanah kamu, sedangkan kamu mengetahui (salahnya)” al-Anfal :27

OUTCOME BASED EDUCATION (OBE) & CONTINUOUS QUALITY IMPROVEMENT (CQI)

OLEH
PN. NORAZIELA BINTI MOKHTAR
PENSYARAH UTAMA
MASTER TRAINER DKDPNA DKA
POLITEKNIK PORTDICKSON

PEMBINAAN ITEM PENILAIAN BERKUALITI GAPC DKDPNA

OLEH

NOR HANIZA BINTI MUSTAFAR KAMAR

KETUA PROGRAM DKA

PENOLONG KETUA MASTER TRAINER DKDPNA

POLITEKNIK PORT DICKSON

POLITEKNIK PORT DICKSON
KEMENTERIAN PENDIDIKAN TINGGI
KM 14 JALAN PANTAI
71050 SI RUSA PORT DICKSON
NEGERI SEMBILAN DARUL KHUSUS
MALAYSIA

POLITEKNIK MALAYSIA PORT DICKSON
Tel : 06 - 662 2000/2111
Faks : 06 - 662 2026/2027
Laman Web : www.polipd.edu.my
Facebook : LamanRasmiPolPD

Ruj. Kami : PPD/005/~~116~~ 131 Jld.~~4~~ 5 (96)
Tarikh : 27 Disember 2022

SENARAI EDARAN
(Seperti di Lampiran 1)

YBrs. Dr. /Tuan /Puan,

PERLANTIKAN SEBAGAI MASTER TRAINER BAGI GRADUATE ATTRIBUTE INDICATOR ENGINEERING KEPADA KNOWLEDGE PROFILE (DK), WELL DEFINED PROBLEM (DP) & ENGINEERING ACTIVITIES (NA)

Dengan hormatnya merujuk perkara diatas.

2. Sukacita dimaklumkan bahawa tuan/puan telah dilantik menjadi *Master Trainer* bagi *Graduate Attribute Indicator Engineering Kepada Knowledge Profile (DK), Well Defined Problems (DP) & Engineering Activities (NA)*. Perlantikan ini adalah bertujuan sebagai pemudahcara untuk kefahaman kepada pensyarah bekenaan pemetaan penilaian dokumen kurikulum Jun 2019 dan perlaksanaan (DK/NA/DP) mengikut keperluan standard ETAC.

4. Bersama-sama ini disertakan senarai tugas *Master Trainer DK/NA/DP* Politeknik Port Dickson seperti di LAMPIRAN 2 untuk makluman dan tindakan tuan/puan. Kerjasama, perhatian dan komitmen dari pihak tuan, kami dahului dengan ucapan terima kasih.

Sekian.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(DR. ISHAK BIN MOHAMAD)
Pengarah
Politeknik Port Dickson
s.k : Timbalan Pengarah Akademik
UJKA

Bersama Menuju Kecemerlangan

LAMPIRAN 2

BIDANG TUGAS
MASTER TRAINER DK/NA/DP , POLITEKNIK PORT DICKSON

Master Trainer DKNADP ini dilantik bagi membantu meningkatkan kefahaman pensyarah dalam interpretasi kurikulum baru sejajar dengan keperluan ETAC terutamanya pemahaman ke atas *Dublin Accord Attributes*, berdasarkan ETAC yang telah di selarikan dengan penilaian berterusan (AST) kurikulum Jun 2019 dan berdasarkan DK NA DP serta perlaksanaan yang perlu difahami. Antara tugas *Master Trainer* adalah seperti berikut:

a) Membantu Pensyarah di bawah bidang meningkatkan kefahaman berkenaan *assessment mapping* (AST) dengan *graduate attribute* (DK/NA/DP) mengikut kehendak ETAC.

b) Menyemak dan memeriksa kesesuaian rubrik dengan soalan yang diberikan kepada pelajar supaya mematuhi DP/DK/NA mengikut keperluan Dublin Accord.

c) Membantu Pensyarah dalam memahami konsep *Constructive Alignment* dalam konteks OBE dan mengaplikasikan dalam pengajaran dan pembelajaran serta pentaksiran.

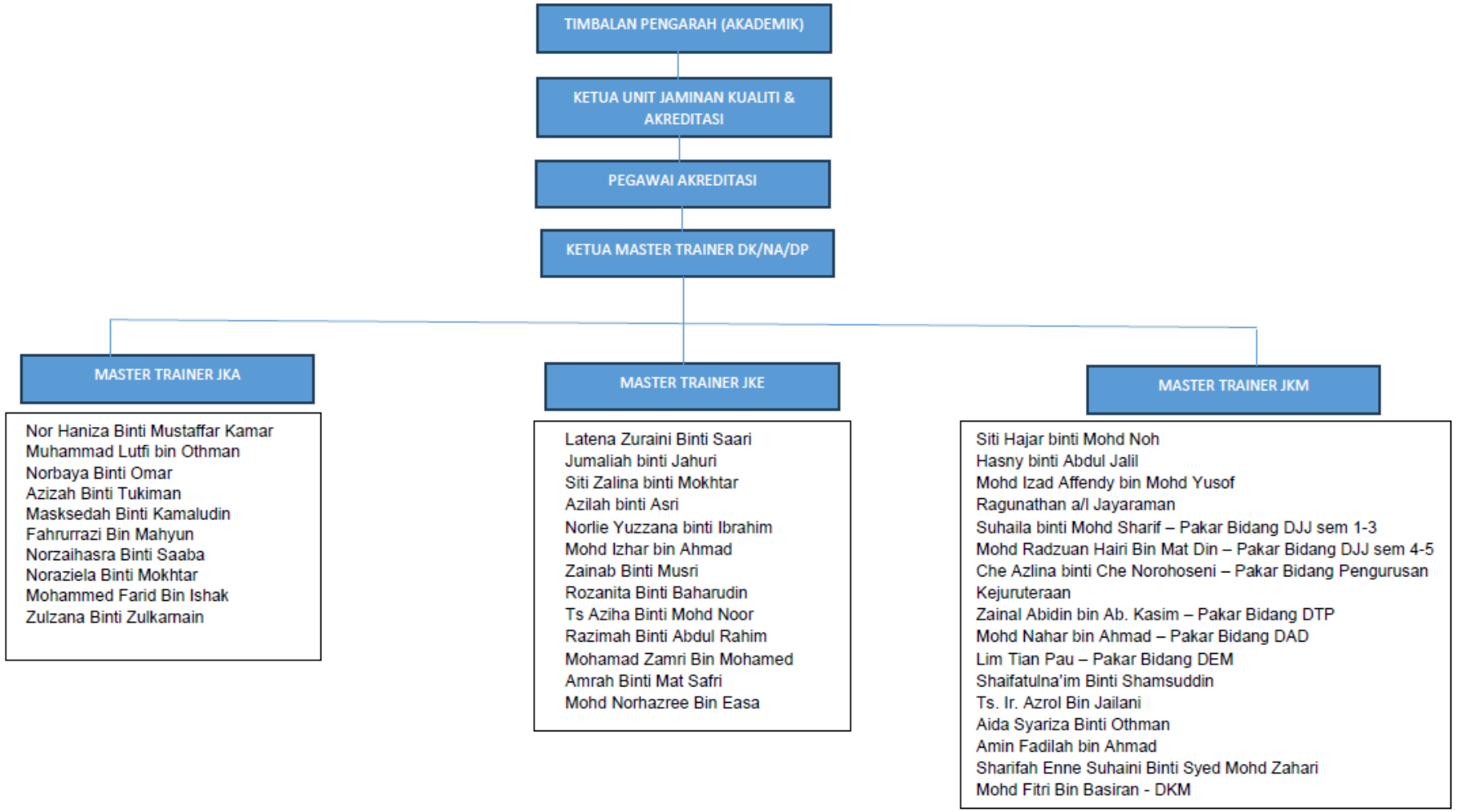
Disahkan oleh,

.....

(DR. ISHAK BIN MOHAMAD)
Pengarah
Politeknik Port Dickson

CARTA ORGANISASI

MASTER TRAINER BAGI GRADUATE ATTRIBUTE INDICATOR ENGINERING KEPADA KNOWLEDGE PROFILE (DK), WELL DEFINE PROBLEM (DP) & ENGINEERING ACTIVITIES (NA) POLITEKNIK PORT DICKSON



OBJEKTIF TAKLIMAT

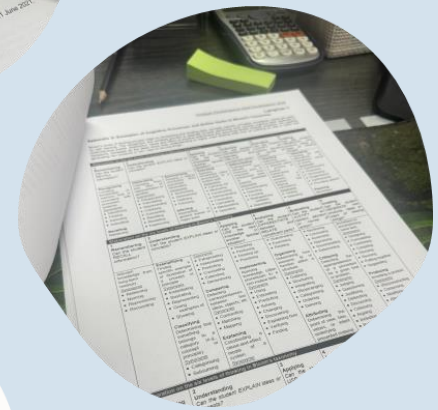
CIVIL
ENGINEERING POLIPD

1. **Meningkatkan penguasaan** pensyarah di dalam **perlaksanaan OBE**, DKDPNA dan pembinaan item penilaian.
2. **Menghasilkan item berkualiti** dan menepati kurikulum dan GAPC Dublin Accord (DKDPNA).
3. **Memperbaiki dan menambaihbaik item Penilaian Berterusan** setiap kursus mengikut format dan kualiti yang ditetapkan.

DOKUMEN-DOKUMEN PERLU DIRUJUK:

SESI II 2023/2024

1. **DOKUMEN KURIKULUM (SYLLABUS)** & COURSE OUTLINE (CO)
2. SLIDE GAPC – PENGERUSI DKA POLITEKNIK
3. PANDUAN PEMBANGUNAN HASIL PEMBELAJARAN 2019 – **TAXONOMI** DALAM GGP 2014
4. IEA – DKDPNA (**RUJUK YANG TERKINI 9DK**)
5. ETAC STANDARD – TECHNICIAN 2020
6. LAIN-LAIN DOKUMEN **ARAHAN DAN PANDUAN**
7. **CAT 2.0** (diedarkan oleh BK, JPPKK)



TERMINOLOGIES

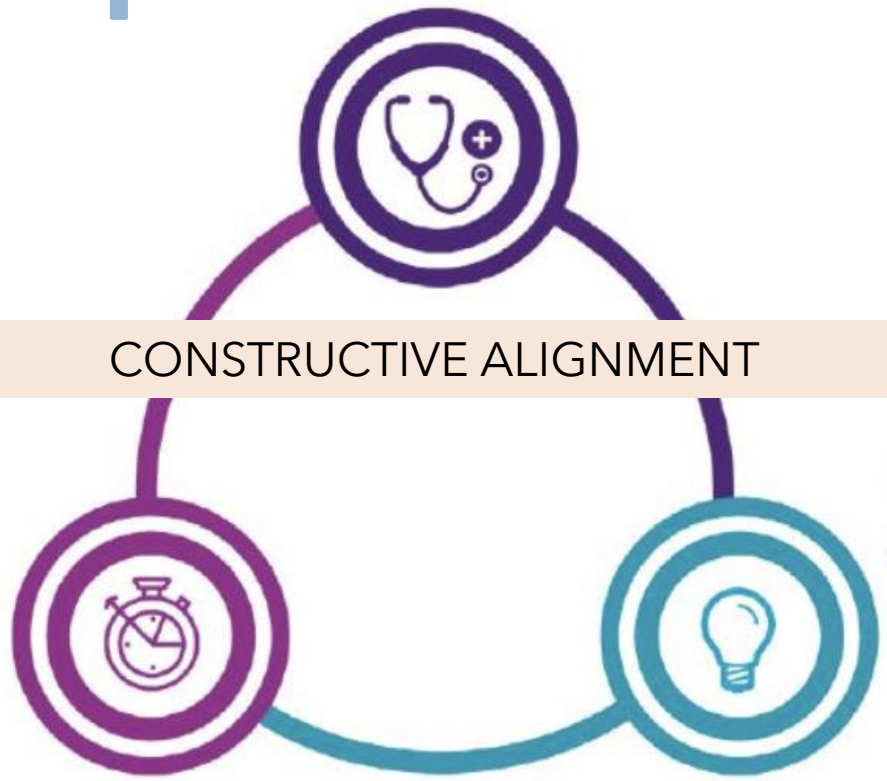
PLO / PO	Statements that describe what students **are expected to know** and be **able to perform** or a team by the time of **graduation**. These relate to the skills knowledge and behavior that students acquire through their program.
DK (Knowledge Profile) 9 DK Criteria	The broad characteristics of the **different components of the knowledge** embodied in a program . To provide **additional guidance** on curriculum design and review. It is important to **design the curriculum** that meets the DK criteria.
DP (Well-defined Engineering Problem) 7 DP Criteria	A range level of **well-defined engineering problem** criteria.
NA (Well-defined Engineering Activities) 5 NA Criteria	A range level of **well-defined engineering activities** criteria.

Engineer Graduate	Engineering Technologist Graduate	Engineering Technician Graduate
Apply knowledge of mathematics, science, computing and engineering fundamentals and an engineering specialization as specified in WK1-WK4 respectively to develop solutions to complex engineering problems.	Apply knowledge of mathematics, science, computing and engineering fundamentals and an engineering specialization as specified in SK1-SK4 respectively to defined and applied engineering procedures, processes, systems or methodologies.	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization as specified in DK1-DK4 respectively to wide practical procedures and practices.

DK

Learning Outcomes

What should students know / be able to do?



CONSTRUCTIVE ALIGNMENT

DP

Assessment Tasks

How will learning be measured?

Learning Activities

How will students learn?

NA

PROGRAM LEARNING OUTCOMES - DKA

PROGRAMME OUTCOME (DKA)		DK & DP/NA	
PO1	Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices	DK1, DK2, DK3, DK4	DP
PO2	Identify and analyze well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4):	DK1, DK2, DK3, DK4	DP
PO3	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):	DK5	DP
PO4	Investigation: Conduct investigations of well-defined problems: locate and search relevant codes and catalogues, conduct standard tests and measurements:	DK8	DP
PO5	Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6):	DK6	DP
PO6	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):	DK1, DK5, DK7	DP
PO7	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):	DK7	DP
PO8	Ethics: Understand and commit to professional ethics and responsibilities and norms of technician practice (DK7):	DK9	
PO9	Function effectively as an individual, and as a member in diverse technical teams:	DK9	
PO10	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:		NA
PO11	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:	DK8	
PO12	Recognize the need for, and have the ability to engage in independent updating in the context of specialized technical knowledge:		

Engineering Technician Education
Programme Accreditation Standard 2020

PLO DKA SEMASA – PLO12

UNDERSTANDING | KNOWLEDGE PROFILE | DK

CHARACTERISTICS OF DK1 – DK9 (IEA – Graduate Attributes Professional Competencies GAPC)		
DK1	**Natural Science**	**A descriptive, formula-based understanding of the natural sciences applicable in a sub-discipline and awareness of directly relevant social sciences**
DK2	**Mathematics**	Procedural mathematics, numerical analysis, statistics applicable in a sub-discipline
DK3	**Engineering Fundamental**	A coherent procedural formulation of engineering fundamentals required in an accepted sub-discipline
DK4	**Specialist Knowledge**	Engineering specialist knowledge that provides the body of knowledge for an accepted sub-discipline
DK5	**Engineering Design**	Knowledge that supports engineering design and operations based on the techniques and procedures of a practice area
DK6	**Engineering Practice**	Codified practical engineering knowledge in recognized practice area.
DK7	**Knowledge of Issues & Approaches**	Knowledge of issues and approaches in engineering technician practice, such as public safety and sustainable development*
DK8	**Technological Literature**	Engagement with the current technological literature of the practice area
DK9	**Ethics, Inclusive behavior & Conduct**	Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes

UNDERSTANDING

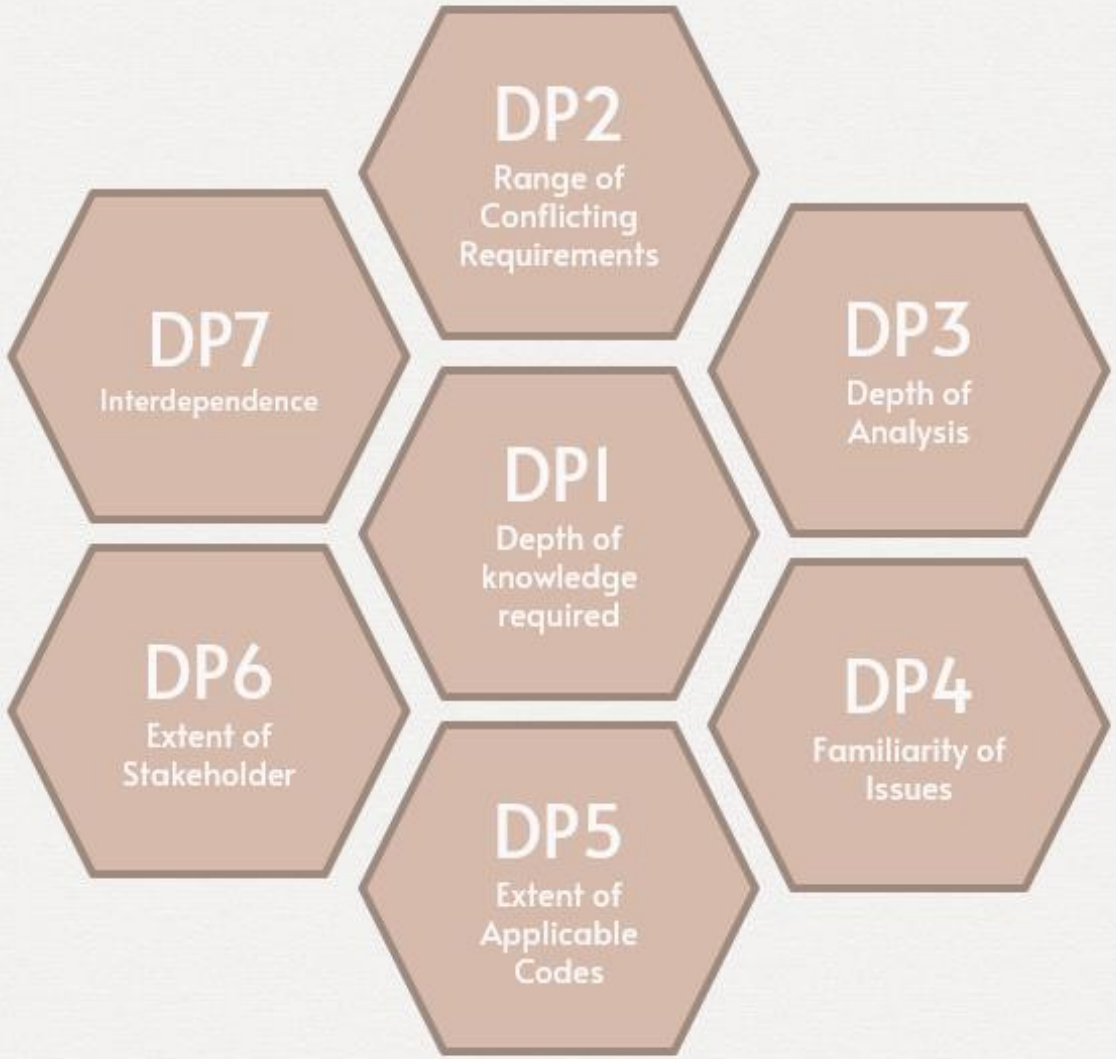
WELL DEFINED ENGINEERING PROBLEMS| DP

Requirement of DK, DP & NA defined by EIA

DP | WELL-DEFINED ENGINEERING PROBLEMS		
DP1	Depth of Knowledge	DP1 Cannot be resolved without extensive practical knowledge as reflected in **DK5 and DK6** supports by theoretical knowledge defined in **DK3 and DK4.**
DP2	Range of conflicting Requirement	DP2 involve several issues, but with few of these exerting conflicting constraints.
DP3	Depth of Analysis required	DP3 can be solved in standardized ways.
DP4	Familiarity of Issues	DP4 are frequently encountered and thus familiar to most practitioners in the practice area.
DP5	Extent of Applicable Codes	DP5 are encompassed by standards and/or documented codes of practice.
DP6	Extent of Stakeholder involvement and level of conflicting requirement.	DP6 involve a limites range of stakeholders with differing needs.
DP7	Interdependence	DP7 are discrete components of engineering systems.

UNDERSTANDING

WELL DEFINED ENGINEERING PROBLEMS| DP



Example:

DP1
WAJIB

\+ DP2

\+ DP4

DP 1 + 2 DP

OR MORE...

UNDERSTANDING

Requirement of DK, DP & NA defined by EIA

WELL DEFINED ENGINEERING ACTIVITIES| NA

	Description	Explanation Example
Range of Resources	**NA1** involve a limited range of resources (people, money, equipment, materials, information and technology)	What resources were available to help you perform this Engineering Activity?
Level of interactions	**NA2** require resolution of interactions between limited technical and engineering issues with little or no impact of wider issues.	Evaluate / Determine the unforeseen issue during execution of FYP
Innovation	**NA3** involve the use of existing materials, techniques, or processes in modified or new ways	Creative solution / modified ways of solution e.g. DT
Consequences to society and the environment	**NA4** have consequences that are locally important and not far reaching	Impact of Highway Construction to the society. Who? Why? How?
Familiarity of issues	**NA5** require a knowledge of practical procedures and practices for widely-applied operations and processes.	Familiar with the procedure, technique and practices.

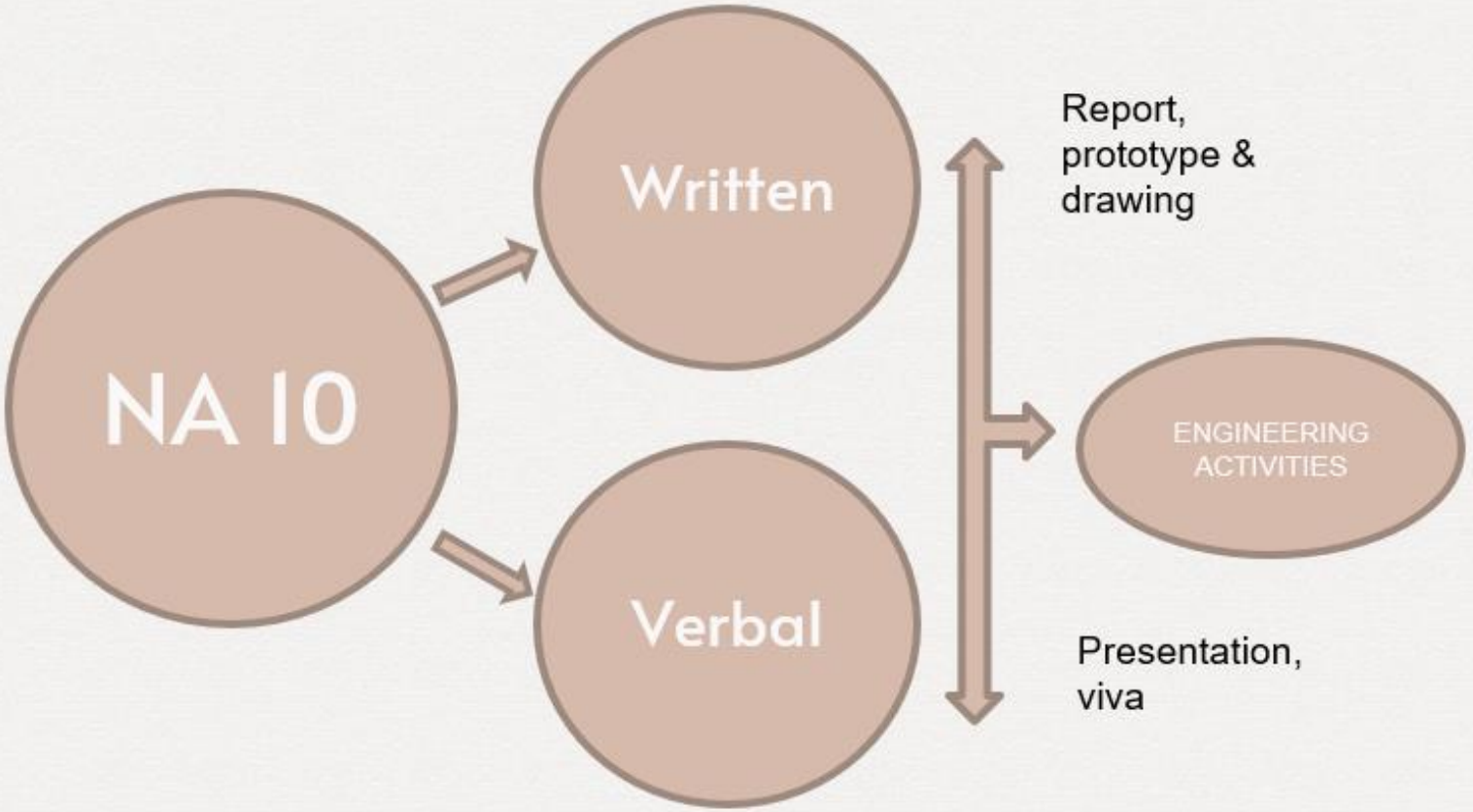
UNDERSTANDING

Requirement of DK, DP & NA defined by EIA

WELL DEFINED ENGINEERING ACTIVITIES| NA

COMMUNICATE

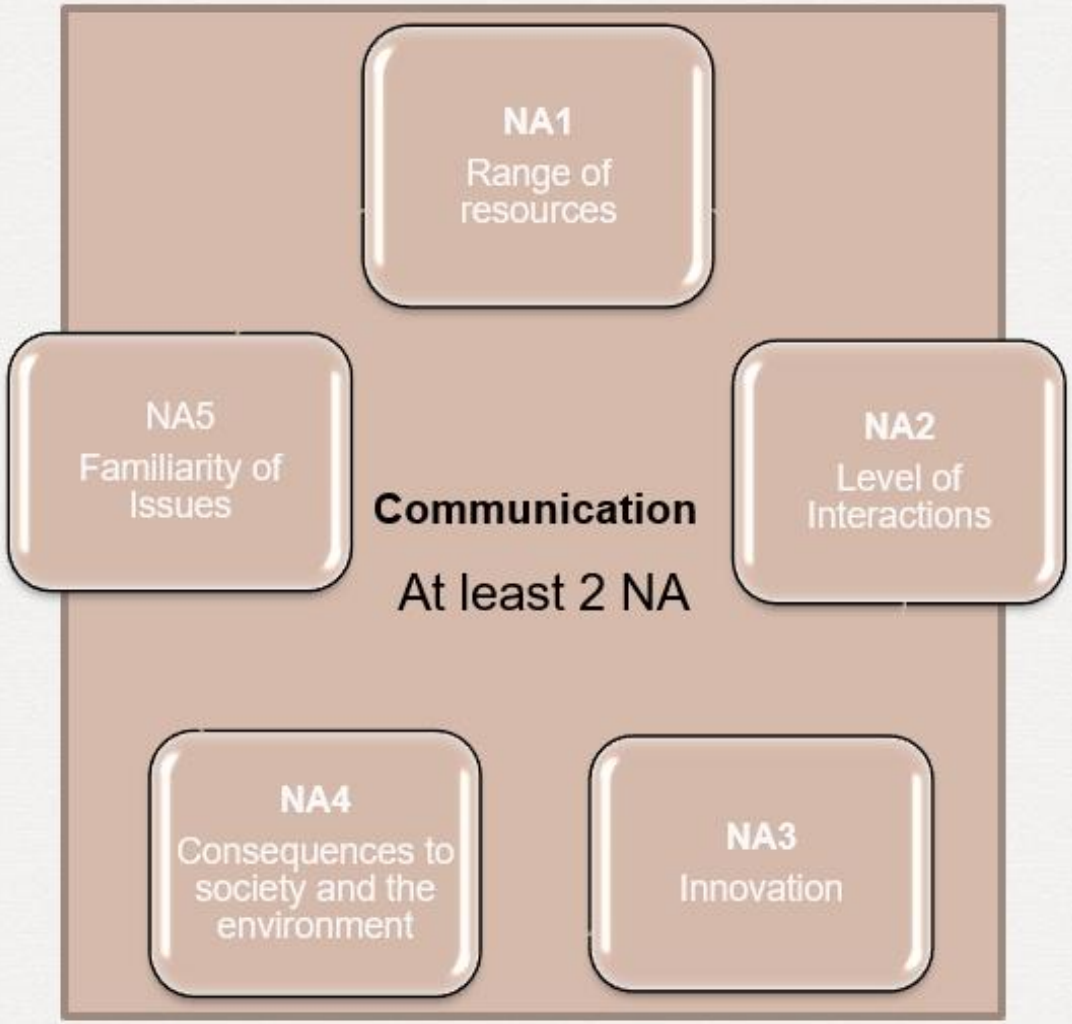
Communicate effectively on **well-defined engineering activities** with the engineering community and with society at large, by being able to comprehend the work of others, document their own work and give and receive clear instructions.



UNDERSTANDING

Requirement of DK, DP & NA defined by EIA

WELL DEFINED ENGINEERING ACTIVITIES| NA



Suggestion for Rubric Framework:

i. Content of presentation / report / documentation (NA1/NA2/NA3/NA4/NA5 – At least 2NAs)
ii. Organization of presentation / report / documentation (NA3 – Communication Skill)
iii. Delivery & Interaction (NA4 – Communication Skill)
iv. Formatting (NA5 – Communication Skill)

2 NA sekurang-kurangnya.

**Bila pensyarah tanya soalan, pelajar boleh jawab dengan betul (Menepati kehendak NA)*

MAPPING DKDPNA – PLO DKA POLITEKNIK

PO	Keywords	Characteristics	DK	DP/NA
PO1	**Knowledge**	**Apply knowledge** of applied mathematics, applied science, engineering fundamentals and an engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices.	DK1: Natural Sciences DK2: Mathematics DK3: Engineering Fundamental DK4: Specialist Knowledge	DP
PO2	**Problem Analysis**	Identify and **analyze well-defined engineering problems** reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4).	DK1: Natural Sciences DK2: Mathematics DK3: Engineering Fundamental DK4: Specialist Knowledge	DP
PO3	**Design / Development of Solutions**	**Design solutions** for **well defined technical problems** and assist with the designs of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (DK5).	DK5: Engineering Design	DP
PO4	**Investigation**	Conduct **investigations of well-defined problems**; locate and search relevant codes and catalogs conduct standard test and measurements.	DK8: Technological Literature	DP

MAPPING DKDPNA – PLO DKA POLITEKNIK

PO	Keywords	Characteristics	DK	DP/NA
PO5	**Modern tools you search**	Apply **appropriate techniques** resources at modern engineering and IT tools **to well defined engineering problems** with an awareness of the limitations (DK6).	DK6: Practical Engineering Knowledge	DP
PO6	**The engineer and society**	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).	DK7: Knowledge of Issues and Approaches DK5: Engineering Design DK1: Natural Science	DP
PO7	**Environment and sustainability**	Understand and **evaluate the sustainability** and impact of engineering technician work in the solution of **well-defined engineering problems** in societal and environmental context (DK7)	DK7: Knowledge of Issues and Approaches	DP
PO8	**Ethics**	Understand and commit to professional ethics and **responsibilities and norms of technician practice (DK7).**	DK9 : Ethics, inclusive behavior and conduct	-

MAPPING GAPC – PLO DKA POLITEKNIK

PO	Keywords	Characteristics	DK	DP/NA
PO9	**Individual and teamwork**	Function effectively as an individual and as a member in diverse technical terms.	DK9 : Ethics, inclusive behavior and conduct	-
PO10	**Communication**	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 in instructions.	-	NA
PO11	**Project management and finance**	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.	-	-
PO12	**Lifelong learning**	Recognize the need for and have the **ability to engage independently** in the context of specialized technical knowledge.	DK8: Technological Literature	-

RELATIONSHIP

Between Assessments – DK DP & NA

DK | DP | NA

PLO1, PLO2, PLO3, PLO4, PLO5, PLO6, PLO7

DK

Knowledge Profile (DK)
Detailed mapping are based on Course Content

assessment ⟺

DP

Evaluate using DP

PLO10

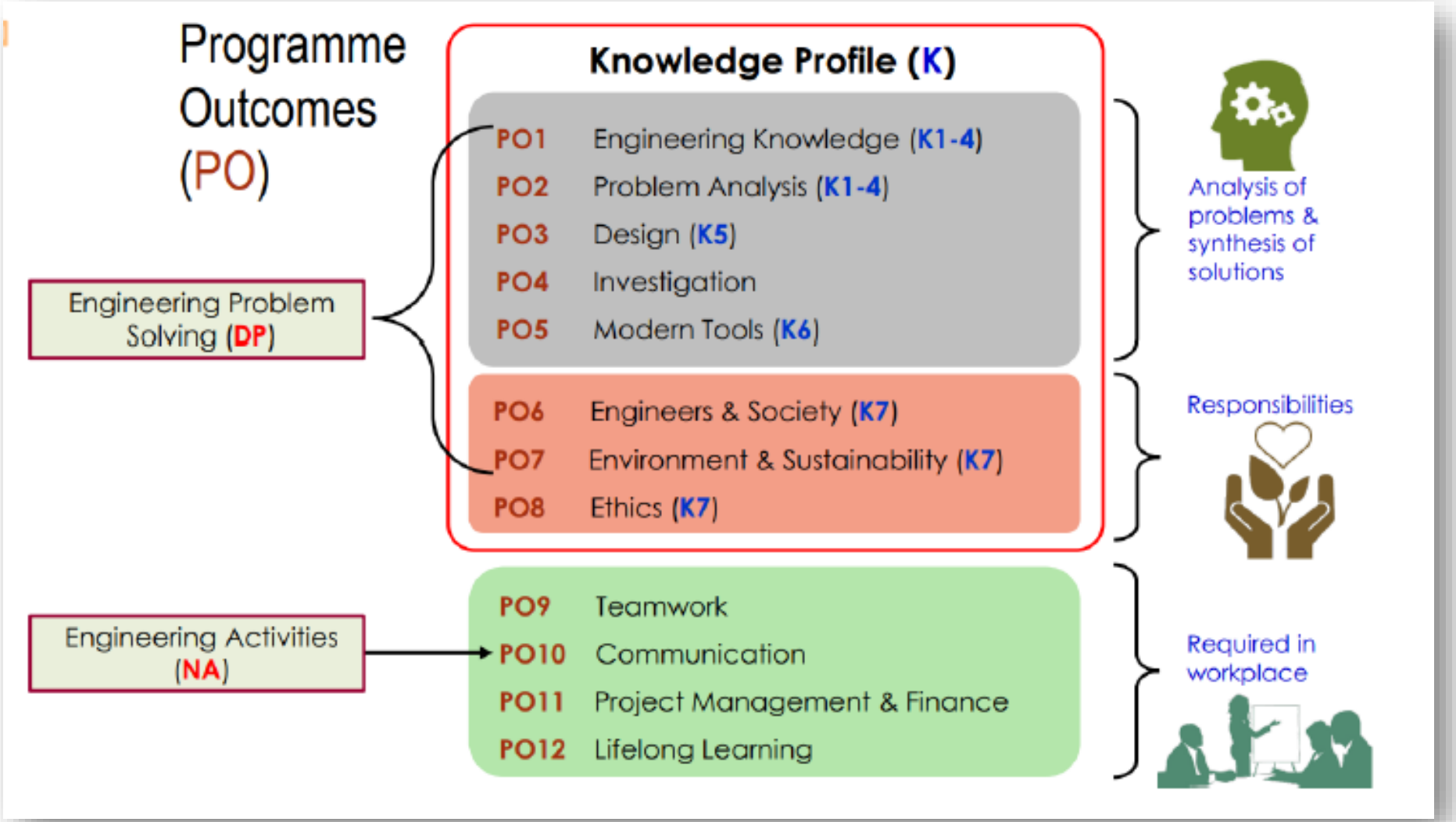
assessment ⟺

NA

Evaluate using NA

RELATIONSHIP

Between Programme Outcomes - DKDPNA



AMALAN DI JKA, POLITEKNIK PD

INCORPORATING DK, DP & NA INTO ASSESSMENTS

OLEH
MASTERS TRAINERS DKDPNA
POLITEKNIK PORT DICKSON

AGIHAN KURSUS & MASTER TRAINERS YANG DILANTIK

MASTER TRAINER	KURSUS	BREAKOUT ROOMS
EN MOHAMMED FARID & EN FAHRURAZZI	DCC10012 DCC10022 (PLO9) DCC10032 (PLO12) DCC20042 (PLO9) DCC30082 (PLO8)	
EN MUHAMMAD LUTFI & PN NORBAYA	DCC20053 DCC40142 (PLO8) DCC40163 DCC50203 (PLO8) DCC50242 (PLO8)	
PN MASKSEDAH & NOR HANIZA	DCC20063 [illegible] DCC[illegible] (PLO4 DCC30[illegible] DCC3[illegible]12 (PLO4, PLO6) DCC50212	
PN AZIZAH & PN ZULZANA	DCC20073 (PLO8) DCC40132 DCC50232 (PLO6, PLO8, PLO12) DCC50252 (PLO4, PLO9)	
PN NORAZIELA & PN NORZAIHASRA	DCC30122 DCC40152 DCC40172 (PLO4, PLO6) DCC50222 DCC50262 (PLO4, PLO9)	

CONTOH

ALIRAN PENYEDIAAN ITEM PB

Penyediaan Soalan / Rubric oleh Pensyarah Bersama Master Trainer

↓

Semakan oleh Pakar Bidang / Penyelaras kursus

↓

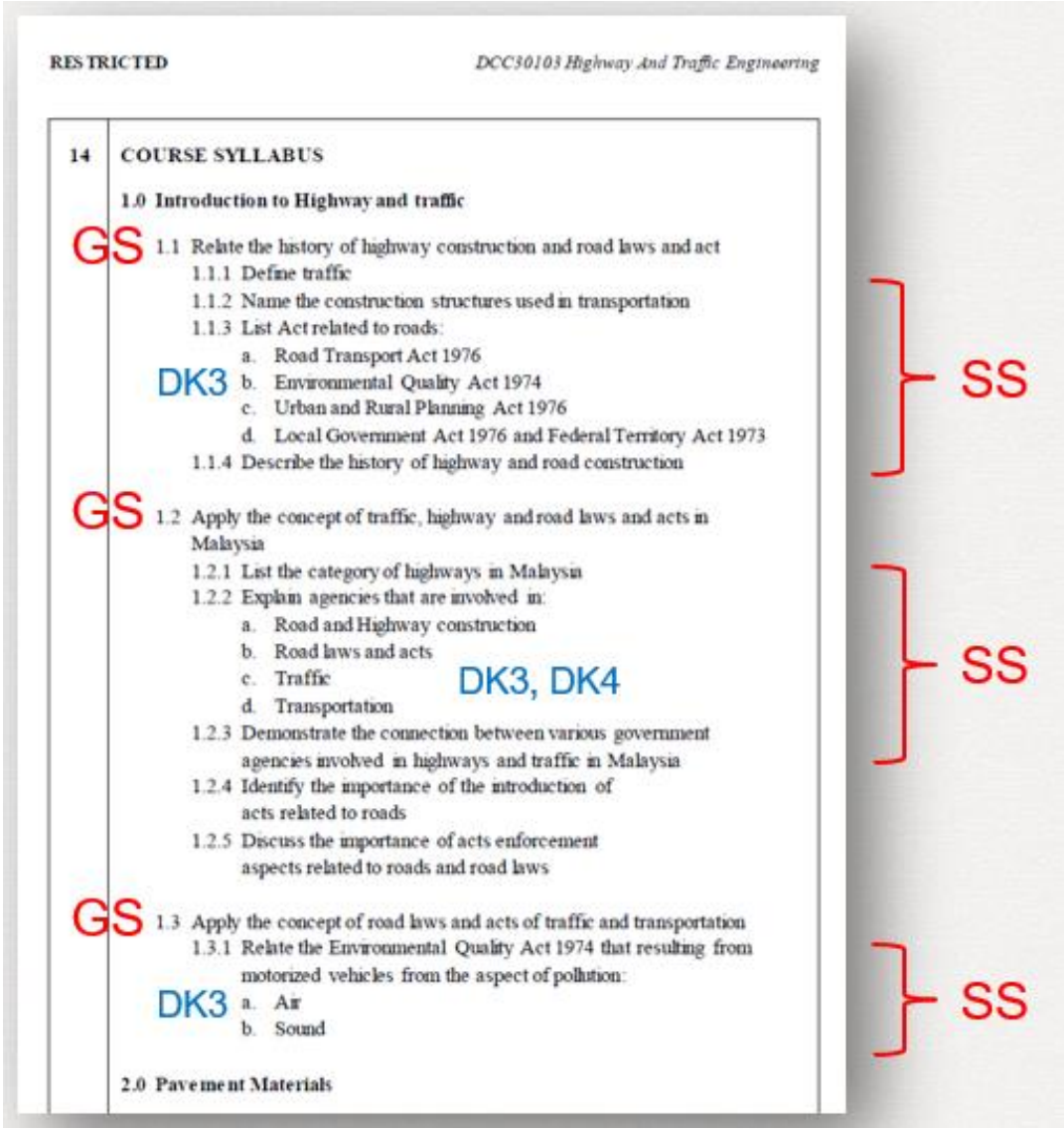
Pengesahan oleh Ketua Program

TARIKH : TARIKH BENGKEL PEMBINAAN ITEM PENILAIAN BERKUALITI

STEP 1 Identify the relationship between PLO and DK

Upon completion of the programme, students should be able to:		DK
PLO1	Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices	DK1 DK2 DK3 DK4
PLO2	Identify and analyze **well-defined engineering problems** reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)	DK1 DK2 DK3 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)	DK5
PLO4	Conduct investigations of **well-defined problems**; locate and search relevant codes and catalogues, conduct standard tests and measurements	DK8
PLO5	Apply appropriate techniques, resources, and modern engineering and IT tools to **well-defined engineering problems**, with an awareness of the limitations (DK6)	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)	DK5 DK1
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)	DK7
PLO8	Understand and commit to professional ethics and responsibilities and norms of technician practice	DK7
PLO9	Function effectively as an individual, and as a member in diverse technical teams	DK9
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	DK8

STEP 2 Identify knowledge profile for each GS and SS in syllabus



RESTRICTED *DCC30103 Highway And Traffic Engineering*

14 **COURSE SYLLABUS**

1.0 Introduction to Highway and traffic

GS 1.1 Relate the history of highway construction and road laws and act
- 1.1.1 Define traffic
- 1.1.2 Name the construction structures used in transportation
- 1.1.3 List Act related to roads:
  - a. Road Transport Act 1976
  - DK3 b. Environmental Quality Act 1974
  - c. Urban and Rural Planning Act 1976
  - d. Local Government Act 1976 and Federal Territory Act 1973
- 1.1.4 Describe the history of highway and road construction

SS

GS 1.2 Apply the concept of traffic, highway and road laws and acts in Malaysia
- 1.2.1 List the category of highways in Malaysia
- 1.2.2 Explain agencies that are involved in:
  - a. Road and Highway construction
  - b. Road laws and acts
  - c. Traffic DK3, DK4
  - d. Transportation
- 1.2.3 Demonstrate the connection between various government agencies involved in highways and traffic in Malaysia
- 1.2.4 Identify the importance of the introduction of acts related to roads
- 1.2.5 Discuss the importance of acts enforcement aspects related to roads and road laws

SS

GS 1.3 Apply the concept of road laws and acts of traffic and transportation
- 1.3.1 Relate the Environmental Quality Act 1974 that resulting from motorized vehicles from the aspect of pollution:
  - DK3 a. Air
  - b. Sound

SS

2.0 Pavement Materials

From Syllabus,

CLO1 – PLO1

CLO2 – PLO3

CLO3 – PLO10

From PO-DKDPNA Mapping,

PLO1 – DK1, DK2, DK3, DK4 |DP

PLO3 – DK5 |DP

PLO10 – NA

GS – General Statement

SS – Specific Statement

Example : DCC30103

STEP 3 Map each topic to Knowledge Attributes

Topic	DK1 Natural Science	DK2 Mathematic	DK3 Engineering Fundamental	DK4 Specialist Knowledge	DK5 Engineering Design	DK6 Practical Engineering Knowledge	DK7 Knowledge of issue and approach
Introduction to Highway and Traffic Engineering	✓		✓				
Pavement Material & Testing	✓		✓	✓			
Construction of Flexible Pavement				✓			
Construction of Rigid Pavement				✓			
Design of Flexible Pavement		✓		✓	✓		
Traffic Control Equipment, Road Furniture & Road Marking			✓	✓			
Junction Design		✓		✓	✓		
Traffic Management				✓			
Highway Maintenance				✓			

Example : DCC30103

STEP 4 Refer syllabus to identify type of assessment and taxonomy domain.

15 ASSESSMENT:

The course assessment consists of :

i. **Continuous Assessment (CA) – 50%**

ii. **Final Examination (FE) /Final Assessment (FA)– 50%**
Final examination is carried out at the end of the semester.

CLO	PLO	DT	PROPOSED TEACHING & LEARNING ACTIVITIES	CONTINUOUS ASSESSMENT WEIGHTAGE (%)				FINAL ASSESSMENT WEIGHTAGE (%)	SLT (hours)	PROPOSED TOPIC
				Test	Presentation	Assignment	Case Study	Final Examination		
				(2) 20%	(1) 10%	(1) 10%	(1) 10%	(1) 50%		
CLO1 : Apply appropriate model to solve problem in highway and traffic engineering	1	C3	Interactive Lecture	•					47	T1-T9
			Cooperative Learning					•		
CLO2 : Assesses design performance for highway and traffic engineering based on appropriate specification with consideration of public safety, society and environment	3	C5	Interactive Lecture				•		63	T8-T9
			Cooperative Learning			•				T7/T8/T9
			Interactive Lecture					•		T5,T7,T8,T9
CLO3 : Explain the findings of a case study/assign topic in a formal presentation	10	A3	Student Centred Learning		•				10	T7/T8/T9
								TOTAL SLT:	**120**	

Remarks/ Notes:

DT : DOMAIN TAXONOMY
/ : OR
- : UNTIL
, : AND
(#) : NUMBER OF ASSESSMENTS

Example : DCC30103

STEP 5 Construct Framework of DK, DP and NA

Refer to CAT 2.0 (Session II 2023/2024)

MAPPING OF PROFILE KOWLEDGE (DK) TO WELL DEFINED ENGINEERING PROBLEM (DP) & WELL DEFINED ENGINEERING ACTIVITIES (NA)
COURSE ASSESSMENT MAPPING TABLE (CAMT)
COURSE : DCC30103 HIGHWAY AND TRAFFIC ENGINEERING

CLO		ASSESSMENTS				TOPIC DISTRIBUTION	DOMAIN TAXONOMY	WELL DEFINED PROBLEM SOLVING (DP)										KNOWLEDGE PROFILE (DK)					WELL DEFINED ENGINEERING ACTIVITIES (NA)					ADDITIONAL INFORMATION
								DP1				DP2	DP3	DP4	DP5	DP6	DP7	PLO1 (KNOWLEDGE)				PLO3 (DESIGN SOLUTION)					
								DEPTH OF KNOWLEDGE				RANGE OF CONFLICTING REQUIREMENT	DEPTH OF ANALYSIS REQUIRED	FAMILIARITY OF ISSUES	EXTENSIVE APPLICABLE CODES	INTERDEPENDENCE		DK1	DK2	DK3	DK4	DK5	PLO1/PO9					
		TYPES	QUANTITY (%)	TOPIC	QUESTION			DP3 (ENGINEERING FUNDAMENTAL)	DP4 (SPECIALIST KNOWLEDGE)	DP5 (ENGINEERING DESIGN)	DP6 (PRACTICAL ENGINEERING KNOWLEDGE)							NATURAL SCIENCES	MATHEMATIC	ENGINEERING FUNDAMENTAL	SPECIALIST KNOWLEDGE	ENGINEERING DESIGN	RANGE OF RESOURCES	LEVEL OF INTERACTIONS	INNOVATION	CONSEQUENCES TO SOCIETY & ENVIRONMENT	FAMILIARITY OF ISSUES	
1	Apply appropriate model to solve problem in highway and traffic engineering (C3,PLO 1)	Test 1	10%	T1-T5	Q1	1	C1 - C2	/																				Pemilihan soalan menggunakan DP adalah melalui moderasi mengikut aras kesukaran dan jam yang diperuntukan untuk pelajar menjawab Test 1. tidak semestinya semua soalan adalah berbentuk DP *minimum practice sekurang-kurangnya 2 soalan menggunakan DP * best practice semua soalan menggunakan DP dan variasikan pemilihan DP mengikut jenis soalan
					Q2	2	C2 - C3		/																			
					Q3	3	C3	/												/								
					Q4	4	C3	/						/						/								
					Q5	5	C3	/							/				/			/						
		Test 2	10%	T6-T9	Q1	6	C2 - C3	/	/											/	/							Pemilihan soalan menggunakan DP adalah melalui moderasi mengikut aras kesukaran dan jam yang diperuntukan untuk pelajar menjawab Test 2. tidak semestinya semua soalan adalah berbentuk DP *minimum practice sekurang-kurangnya 1 soalan menggunakan DP * best practice semua soalan menggunakan DP dan variasikan pemilihan DP mengikut jenis soalan
					Q2	7	C3	/	/	/					/				/	/	/	/						
					Q3	8	C3	/	/									/		/								
					Q4	9	C3	/	/											/	/							
		Final Exam	25%	T1,T2,T3,T4, T6	REFER FEIST		C2 - C3	/	/	/		/	/	/														refer pada FEIST
2	Assesses design performance for highway and traffic engineering based on appropriate specification with consideration of public safety, society and environment (C5 , PLO 3)	Assignment	10%	T7/T8/T9	Q1	T7/T8/T9	C3-C4	/	/	/					/				/	/	/	/						Pemilihan DP bergantung kepada soalan assignment namun sekiranya soalan DP banyak digunakan di penilaian lain dan assignment fokus kepada latihan soalan berbentuk soalan final exam, boleh moderasi supaya assignment tidak menggunakan DP. Perbincangan dikalangan pensyarah kursus dan penyelaras kursus perlu
								/	/					/						/	/							
								/	/					/						/	/							
		Case Study	10%	T8-T9	Q1	8	C4-C5	/	/				/	/						/	/							
					Q2	9	C4-C5	/	/				/	/						/	/							
		Final Exam	25%	T5,T7,T8,T9	REFER FEIST		C4-C5	/	/	/		/	/	/	/													refer pada FEIST
3	Explain the findings of a case study/assign topic in a formal presentation (A3 , PLO 10)	Presentation	10%	T7/T8/T9			A3																/	/		/	/	Lampirkan rubrik penilaian
		Total Mark	100%	Topic: T1 : Introduction to Highway and Traffic T2 : Pavement Materials T3 : Construction of Flexible Pavement T4 : Construction of Rigid Pavement T5 : Flexible Pavement Design T6 :Traffic Control Equipment, Road Furniture and Road Marking T7 : Junction Design T8 : Traffic Management T9 : Highway Maintenance			Pemilihan soalan menggunakan DP adalah melalui moderasi mengikut aras kesukaran dan jam yang diperuntukan untuk pelajar menjawab penilaian. tidak semestinya semua soalan adalah berbentuk DP *minimum practice sekurang-kurangnya 2 soalan menggunakan DP * best practice semua soalan menggunakan DP dan variasikan pemilihan DP mengikut jenis soalan * bilangan minimum DP1 + 2DP bagi 1 soalan * Penentuan bilangan maximum DP dan jumlah soalan menggunakan DP juga boleh ditentukan berdasarkan kepada pecahan markah pada CLO-PLO, jumlah assessment terhadap CLO-PLO dan aras taksonomi CLO																

Example : DCC30103

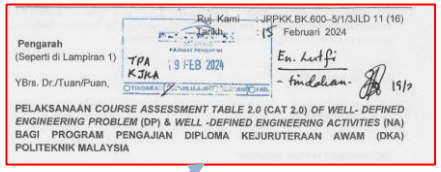
STEP 5 Construct Framework of DK, DP and NA

Refer to CAT 2.0 (Session II 2023/2024)

Keluarkan maklumat daripada CAT:

Assessment	Bloom	CLO		PLO	DP/NA
Test 1 (T1-T5)	C3	1	Apply appropriate model to solve problem in highway and traffic engineering	PLO1	DP1, DP4,DP5
Test 2 (T6-T9)	C3			PLO1	DP1, DP5
Assignment (T7/T8/T9)	C5	2	Assesses design performance for highway and traffic engineering bases on appropriate specification with consideration of public safety, society and environment	PLO3	DP1,DP3, DP4
Case Study (T8-T9)				PLO3	DP1,DP2,DP3
Presentation (T7/T8/T9)	A3	3	Explain the findings of a case study/assign topic in a formal presentation.	PLO10	NA1,NA2, NA4,NA5

3. Bersama ini juga dilampirkan senarai politeknik penyelaras kursus mengikut CAT 2.0 (Lampiran 2) untuk makluman dan tindakan pihak YBrs. Dr./tuan/puan. CAT 2.0 ini adalah rujukan minimum pemetaan bagi DP & NA. Sekiranya pensyarah mempunyai pemetaan yang berbeza untuk perlaksanaan, ia boleh dilaksanakan namun perlu disahkan oleh ketua program dan dimaklumkan kepada urusetia. Bagi kursus *Final Year Project* 1 & 2 pula tiada pemetaan dilaksanakan kerana rubrik rubrik berasaskan DP & NA telah diselaraskan melalui *Student – Oriented Learning Management Systems* (ISOLMS). Ketua program DKA boleh memuat turun CAT 2.0 tersebut melalui pautan Google Sites seperti di bawah untuk rujukan semua pesyarah:


Pengarah
(Seperti di Lampiran 1)

YBrs. Dr./Tuan/Puan,

PELAKSANAAN *COURSE ASSESSMENT TABLE 2.0* (CAT 2.0) *OF WELL- DEFINED ENGINEERING PROBLEM* (DP) & *WELL -DEFINED ENGINEERING ACTIVITIES* (NA) BAGI PROGRAM PENGAJIAN DIPLOMA KEJURUTERAAN AWAM (DKA) POLITEKNIK MALAYSIA

Example : DCC30103

STEP 5 Construct Framework of DK, DP and NA

EXAMPLE 1 : TEST 1

	Topic **PLO1 (CLO1, C3)** **(5 Soalan perlu dijawab dalam masa 1 jam)**	DP1 (DK3/4 & DK5/6)	DP2 Range of Conflicting Requirement	DP3 Depth of Analysis	DP4 Familiarity of Issues	DP5 Extensive Applicable Codes	DP6 Extend of Stakeholder involvement	DP7 Interdependent
1	Introduction to Highway and Traffic Engineering	✓			✓	✓		
2	Pavement Material & Testing	✓						
3	Construction of Flexible Pavement	✓		✓				
4	Construction of Rigid Pavement	✓		✓	✓			
5	Design of Flexible Pavement	✓		✓		✓		

Warna hijau
(Tambahan)

Example : DCC30103

STEP 6 Construct Assessment Questions

	QUESTION		SUGGESTION OF DP
1.	"The law is important because it acts as a guideline to ensure our safety and rights against abuse. The two acts related to transportation in Malaysia are the Road Transport Act 1987 and Environmental Quality Act 1974."	Stimulus	DP1 (depth of knowledge required) + DP4 (Familiarity of issues) + DP5 (Extent of applicable codes)
	a) Explain the concept of road laws and acts of traffic and transportation related to the Environmental Quality Act 1974 that results from motorized vehicles from the aspect of air and sound pollution	Question	

DP1 – DK3 Fundamental Knowledge + DK5 Engineering Practice

	QUESTION		SUGGESTION OF DP
2.	"Bitumen is a thick, black, and highly viscous substance that is a byproduct of the refining of crude oil. There are different types of bitumen available with different properties, specifications and uses based on requirements of consuming industry."	Stimulus	DP1 (depth of knowledge required)
	a) Explain THREE (3) differences between bitumen emulsion and bitumen cutback.	Question	

Example : DCC30103

STEP 6 Construct Assessment Questions

	QUESTION		SUGGESTION OF DP
5.	A road for 2-lane is to be built as a rural road in a hilly terrain. It has an average daily traffic of 600 (one direction, 24-hour period), percentage of commercial vehicles is 4% with an un-laden weight >1.5 tons. The rate of traffic growth is 1.3%. The road design life is 10 years. CBR of subgrade is 5%.	Information	DP1 (depth of knowledge required) + DP3 (Depth of Analysis Required) + DP5 (Extent of applicable codes)
	By employing the JKR Malaysia Design Method for the road, choose a suitable conventional flexible pavement structure.	Question	

Example : DCC30103

STEP 5 Construct Framework of DK, DP and NA

EXAMPLE 2 : CASE STUDY

Topic (PLO3, C5)	**DP1 (DK3 – DK6)**	**DP2 Range of Conflicting Requirement**	**DP3 Depth of Analysis**	**DP4 Familiarity of Issues**	**DP5 Extensive Applicable Codes**	**DP6 Extend of Stakeholder involvement**	**DP7 Interdependent**
Traffic Management	✓	✓	✓	✓			
Highway Maintenance	✓	✓	✓	✓			

Warna hijau
(Tambahan)

Example : DCC30103

STEP 6 Construct Assessment Questions

	QUESTION		SUGGESTION OF DP
	Therefore, the objectives of this case study are as follows: • to **prepare a comprehensive inventory of the parking lot** in the selected area, including identifying the number of parking spaces, their sizes, and locations. (T8) • to **assess any defects present in the parking lot** and surrounding areas, such as potholes, uneven pavement, and inadequate lighting. (T9) • to **recommend appropriate parking lot maintenance techniques** to ensure that the parking lot is safe and functional. (T8) • to **recommend suitable traffic management techniques** to enhance safety at the parking lots. (T8) These objectives will contribute to improving the safety and functionality of parking lots and reducing the likelihood of accidents and injuries.	PLO3, C5	DP1 (depth of knowledge required) + DP3 (Depths of Analysis) + DP4 (Familiarity of issues)

DP1 = DK4 Specialist Knowledge + DK6 Engineering Practice

	QUESTION		SUGGESTION OF DP
	To implement this case study, you and your team must **identify a parking area at Politeknik Port Dickson.** The case study aims **to address the challenges and risks associated with the selected parking area** by focusing on two key components: • The first component aims **to improve the quality of parking pavement, infrastructure, and the surrounding areas** to ensure that the parking lot is safe and functional. This includes identifying and addressing any defects, such as potholes, uneven pavement, and inadequate lighting, and recommending appropriate maintenance techniques to prevent further damage. • The second component aims **to improve traffic management strategies to enhance traffic flow, reduce congestion, and minimize the risk of accidents**. This involves **assessing the traffic flow patterns** and **identifying areas where traffic management techniques** can be applied, such as signage, road markings, and speed control measures. By improving the quality of parking pavement and implementing effective traffic management strategies, this case study will contribute to creating safer and more efficient parking areas for both pedestrians and drivers.	PLO3, C5 PLO10, A3	DP1 (depth of knowledge required) + DP2 (Conflicting Requirement) + DP4 (Familiarity of issues)

DP1 = DK4 Specialist Knowledge + DK6 Engineering Practice

Example : DCC30103

STEP 7
Construct GSA / Rubric

DCC30103 Highway & Traffic Engineering – CASE STUDY

POLITEKNIK MALAYSIA

JABATAN KEJURUTERAAN AWAM
GENERIC STUDENT ASSESSMENT TABLE / RUBRIC
DCC30103 HIGHWAY & TRAFFIC ENGINEERING
Assignment

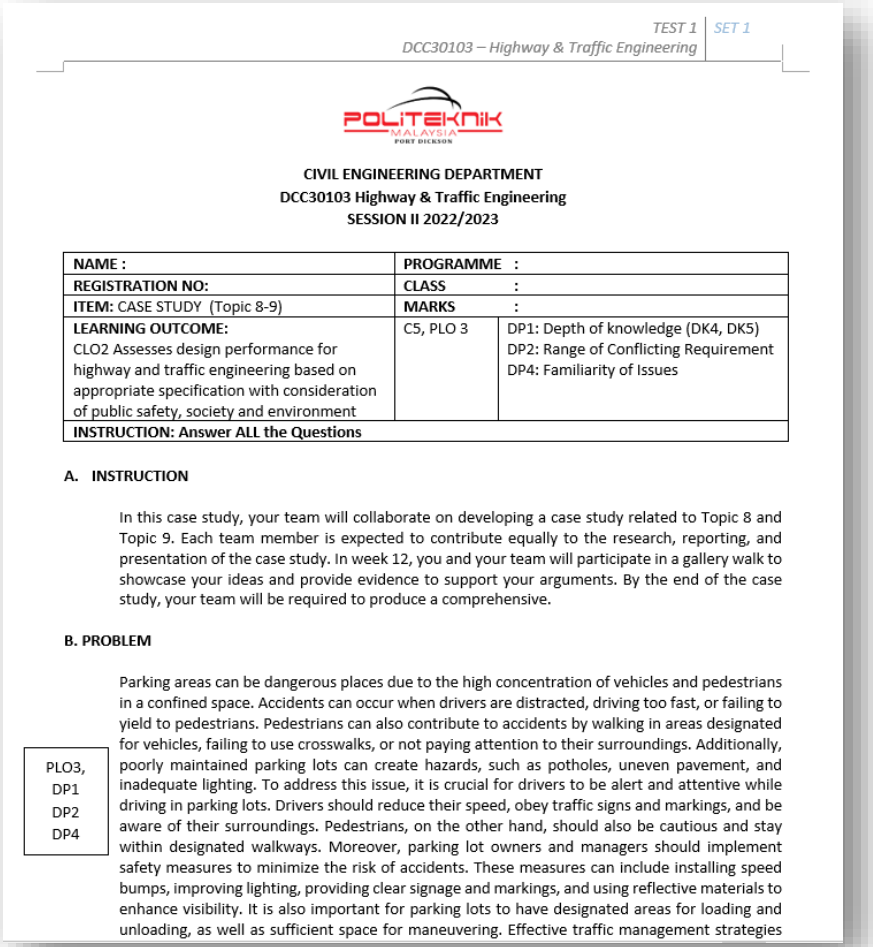
CLO	Attribute	Sub-Attribute	Very Weak (1)	Weak (2)	Satisfactory (3)	Good (4)	Very Good (5)	Marks (1-5)
CLO2C	DP1 Depth of Knowledge	Background of Study	Ability to formulate very poor problem statement based on current situation(previous study/similar work), frequently encountered issues/problem with the current situation	Ability to formulate a poor problem statement based on current situation(previous study/similar work), frequently encountered issues/problem with the current situation and what need to be done	Ability to formulate an acceptable problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current situation and what need to be done.	Ability to formulate a relevant problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current situation and what need to be done.	Ability to formulate very relevant problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current situation and what need to be done.	
	DP2 Conflicting Requirement	Development of Problem Statement	Ability to formulate very poor problem statement based on current situation(previous study/similar work), frequently encountered issues/problem with the current	Ability to formulate a poor problem statement based on current situation(previous study/similar work), frequently encountered issues/problem with the current situation and what need to be done.	Ability to formulate an acceptable problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current situation and what need to be done.	Ability to formulate a relevant problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current situation and what need to be done.	Ability to formulate very relevant problem statement based on current situation(previous study/similar work), infrequently encountered issues/problem with the current	
		Comparing of the conflicting Issues	Unable to manipulate technical and engineering issues based on critical review of the topic in defining the objective and limitation of the project.	Manipulates a weak technical engineering issue based on critical review of the topic in defining the objective and limitation of the project.	Manipulate an adequate technical and engineering issues based on critical review of the topic in defining the objective and limitation of the project.	Manipulate a good indication of technical and engineering issues based on critical review of the topic in defining the objective and limitation of the project	Ability to manipulate an outstanding technical and engineering issues based on critical review of the topic in defining the objective and limitation of the project.	
	DP3 Depth of Analysis	Data Collection and Presentation	Inability to present data	Ability to present data but lacks precision.	Ability to present data adequately using table and/or graphs complete with labels and title with less than 15% error.	Ability to present data using table and/or graphs complete with labels and title with less than 10% error.	Ability to present data accurately using table and/or graphs complete with labels and title with less than 5% error.	
		Can be solved in Standardized ways	Does not show appropriate and correct method of analyzing the data referring to the standard and specification in the common practice.	Show very weak appropriate and correct method of analyzing the data, only mildly referring to the standard and specification in the common practice.	Show an adequete amount of appropriate and correct method of data analysis referring to the standard and specification in the common practice.	Show a good amount of appropriate and correct method of data analysis creatively referring to the standard and specification in the common practice.	Show an excellent amount of appropriate and correct method of data analysis creatively referring to the standard and specification in the common practice.	
	DP4 Fammiliarity of Issues	Familiarity to Specialized knowledge / practices	Unable to build or complete the selection of the practical procedure / practices / methodology /design /development of solution towards expected outcomes of the project.	Ability to build and complete poorly the selection of the practical procedure / practices / methodology /design /development of solution towards expected outcomes of the project.	Ability to build and complete adequately the selection of the practical procedure / practices / methodology /design /development of solution towards expected outcomes of the project.	Ability to build and complete substantially the selection of the practical procedure / practices / methodology /design /development of solution towards expected outcomes of the project.	Ability to build and complete comprehensively the selection of the practical procedure / practices / methodology /design /development of solution towards expected outcomes of the project.	
	DP5 Extent of Applicable Codes	Apply Standard and Specification related to the assignment.	Inability to present finding adequately with poor justification referring to standard and spefication in the common practice..	Ability to present findings poorly with referring to standard and spefication in the common practice..	Ability to present findings adequately with justification referring to standard and spefication in the common practice..	Ability to present findings correctly with justification referring to standard and spefication in the common practice..	Ability to present findings correctly with creative /innovative justification referring to standard and spefication in the common practice..	

PENILAIAN DP DINYATAKAN DENGAN JELAS

STEP 8
Formatting

1. Tuliskan **CLO** yang diuji, **Level Cognitif** (taksonomi Bloom)dan **PLO** yang perlu dicapai (rujuk silibus)
2. Senaraikan **DP** seperti di CAT / di pemetaan PLO-DP

Senarai DP bagi setiap soalan bagi memudahkan justifikasi pembinaan soalan DP.



POLITEKNIK MALAYSIA PORT DICKSON

CIVIL ENGINEERING DEPARTMENT
DCC30103 Highway & Traffic Engineering
SESSION II 2022/2023

NAME :	**PROGRAMME :**	
REGISTRATION NO:	**CLASS :**	
ITEM: CASE STUDY (Topic 8-9)	**MARKS :**	
LEARNING OUTCOME: CLO2 Assesses design performance for highway and traffic engineering based on appropriate specification with consideration of public safety, society and environment	C5, PLO 3	DP1: Depth of knowledge (DK4, DK5) DP2: Range of Conflicting Requirement DP4: Familiarity of Issues
INSTRUCTION: Answer ALL the Questions		

A. INSTRUCTION

In this case study, your team will collaborate on developing a case study related to Topic 8 and Topic 9. Each team member is expected to contribute equally to the research, reporting, and presentation of the case study. In week 12, you and your team will participate in a gallery walk to showcase your ideas and provide evidence to support your arguments. By the end of the case study, your team will be required to produce a comprehensive.

B. PROBLEM

PLO3, DP1 DP2 DP4

Parking areas can be dangerous places due to the high concentration of vehicles and pedestrians in a confined space. Accidents can occur when drivers are distracted, driving too fast, or failing to yield to pedestrians. Pedestrians can also contribute to accidents by walking in areas designated for vehicles, failing to use crosswalks, or not paying attention to their surroundings. Additionally, poorly maintained parking lots can create hazards, such as potholes, uneven pavement, and inadequate lighting. To address this issue, it is crucial for drivers to be alert and attentive while driving in parking lots. Drivers should reduce their speed, obey traffic signs and markings, and be aware of their surroundings. Pedestrians, on the other hand, should also be cautious and stay within designated walkways. Moreover, parking lot owners and managers should implement safety measures to minimize the risk of accidents. These measures can include installing speed bumps, improving lighting, providing clear signage and markings, and using reflective materials to enhance visibility. It is also important for parking lots to have designated areas for loading and unloading, as well as sufficient space for maneuvering. Effective traffic management strategies

TERIMA KASIH