

**CIVIL ENGINEERING DEPARTMENT**

# **CDIO**

**INTEGRATED LEARNING EXPERIENCE  
FOR DIPLOMA IN CIVIL ENGINEERING**

## **ECO KIOSK PROJECT**

**DCC2052 — INTRODUCTION TO INDUSTRIALISED  
BUILDING SYSTEM**

**DCC6232 — ENVIRONMENTAL POLLUTION &  
CONTROL**

**DCC40132 — PROJECT MANAGEMENT & PRACTICES**

**CDIO : INTEGRATED LEARNING EXPERIENCE**  
**DIPLOMA IN CIVIL ENGINEERING**



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# FOREWORD

Alhamdulillah. First and foremost, we bow before Allah in deep grateful-ness that His limitless wisdom and mercy granted us enough strength to complete this book. We express thanks from the bottom of our heart to the Holy Prophet Muhammad (May Allah blesses and peace be upon him) forever a torch of guidance and knowledge for humanity as a whole.

This book is developed as a manual and guideline for both lecturers and students who involved in teaching and learning for integrated courses of three courses namely DCC 2052 (Industrial Building System), DCC 6232 (Environmental Pollution Control), and DCC 40132 (Project Management & Practices). This is the first phase. The second and third phase will be include the other four courses namely DCC 6223 (Reinforced Concrete Design), DCC 6232 (Environmental Pollution Control), DCC 6262 (Steel Structure Design), DCC 2052 (Industrial Building System)DCC 10022 (Brickwork And Concrete Laboratory)DCC 40132 (Project Management & Practices) and DCC 20073 (Contract And Estimating) as a whole seven courses integrated project.

The guideline would develop an understanding upon projects that will be conducted for the whole se-mester. It is also acts as **guidelines and manuscript in producing good and comprehensive manual** in every project which consists of the project brief, Notes of Guidance (NoG), rubrics, the submission requirements, and relevant references. This book also acts as a guideline for lecturers and students in understanding **the suitable marking scheme** that should be given during the practical and exercise session.

Furthermore, rubric of assessment (marking scheme) is explained to guide the process of assessment and develop better understanding upon the syllabus requirements.

The conclusion is, we want to build an eco-kiosk that consist of seven integrated courses. That is with the result of the collection of all building materials resulting from the evaluation of the project implemented in phases starting from planning, design, manufacturing of eco materials, cost calculation to the actual construction stage at the construction site to be built in the future as the appropriate guidance for current and the upcoming DKA students and lecturers.

# INTEGRATED LEARNING EXPERIENCE

## DIPLOMA IN CIVIL ENGINEERING

### PROJECT DESCRIPTION

Starting Session June 2019 session, PPD Deputy Academic Director) has initiated the implementation of "Integrated Learning" as one of the OBE implementation methods for each department. This method involves combining several courses in a project related to the field. Therefore, the JKA has planned to produce a building called "Eco Kiosk". This "Project Eco Kiosk" involves a combination of 7 courses from the Civil Engineering Program, Port Dickson Polytechnic, namely:

- DCC 6223 (Reinforced Concrete Design)
- DCC 6232 (Environmental Pollution Control)
- DCC 6262 (Steel Structure Design)
- DCC 2052 (Introduction to Industrial Building System)
- DCC 10022 (Brickwork And Concrete Laboratory)
- DCC 40132 (Project Management & Practices)
- DCC 20073 (Contract And Estimating)

This project is built to produce a construction (in accordance with the field of Civil Engineering) as a result of the collection of all building materials resulting from project evaluation ("learning outcomes" or "outcome") for the 7 courses above implemented in phases in accordance with the level of implementation of the construction, starting from the design process stage, the manufacture of eco building materials, price estimates up to the construction stage of the entire project completely.

For this **1st Phase**, this project includes **3 courses** namely **DCC 2052 (Introduction to Industrial Building System)**, **DCC 6232 (Environmental Pollution Control)**, and **DCC 40132 (Project Management & Practices)**. By the meanwhile, the other 4 courses will be included in 2nd and 3rd phases until it is successfully built completely according to the project aim.

Eco Kiosk is a green concept building where the structure is made of materials that are innovated by a combination of researchers consisting of lecturers and students from the civil engineering department. Details of the implementation of the construction of the 'eco kiosk' structure are according to the course detailed in the Figure "Eco Kiosk Explode".

This project is an entrepreneurial infrastructure for students and is one of the attractions of its own sustainability as a building with the theme "Affordable and Able to Build". It contains 4 business spaces (kiosks) with a size of 10 feet x 10feett x 10feett (length x width x height) each. The overall size of the "Eco Kiosk" is 20 feet x 20 feet. It will be a place for students to carry out entrepreneurial activities that generate income as well as be a center / medium of current learning that can provide a large space for the development of research based on waste materials.

The Eco Kiosk project is also an umbrella project under the Port Dickson Polytechnic Green Policy which is also one of the POLYGREEN KPI and fulfills the audit KPI for APACC and ETAC in the future, which aims to implement more sustainable environmental conservation elements in learning activities. It is also one of the important indicators in the implementation of a sustainable campus for Port Dickson Polytechnic. The existence of this project is seen to benefit not only the students of Civil Engineering, but also the entire community of Port Dickson Polytechnic.

# INTEGRATED LEARNING EXPERIENCE

## DIPLOMA IN CIVIL ENGINEERING

### SKILL DEVELOPMENT

- I. Personal growth of communication, interpersonal, organization, problem-solving, self-confidence, adaptability, integrity, work ethic and leadership.
- II. Improve personal development on tools handling, work well with others, organize time, work and materials, work through challenging situations and guide those around.
- III. Perform appropriate instrumentation/measurement techniques/ models/simulations

### PROJECT

#### ECO KIOSK PROJECT

- Assessment Methodology
  - Using Rubric

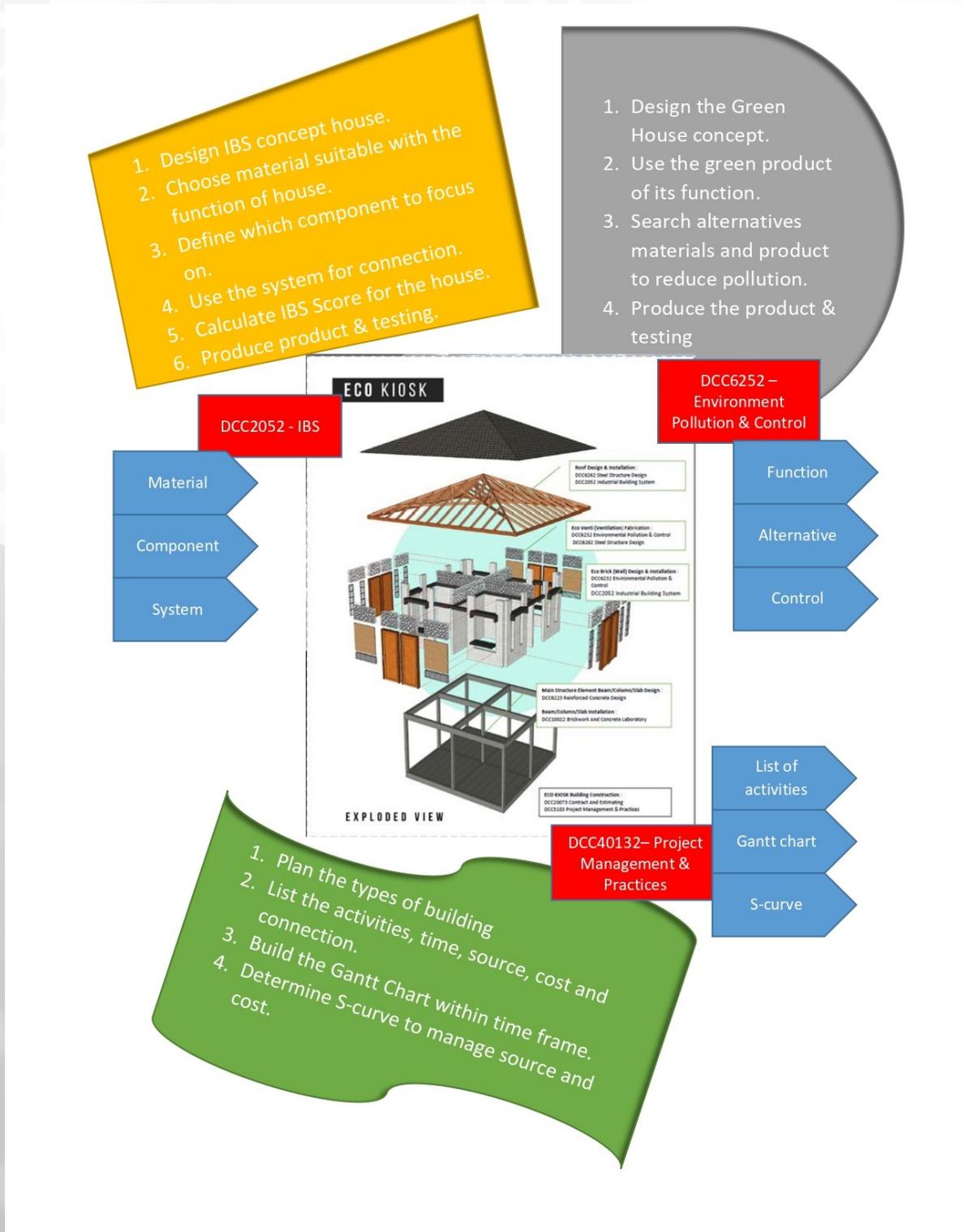
COURSES	TOPICS	ASSESSMENTS
DCC2052 INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM	TOPIC 1 AND	MINI PROJECT 20%
DCC6232 ENVIRONMENTAL POLLUTION AND CONTROL	TOPIC 2 UNTIL 6	MINI PROJECT 40%
DCC40132 PROJECT MANAGEMENT & PRACTICES	TOPIC 4	MINI PROJECT 20%

# INTEGRATED LEARNING EXPERIENCE

## DIPLOMA IN CIVIL ENGINEERING

- Assessment Methodology

- Rubrics



## Design of Integrated Learning Experience – Project

PO	COURSES	RELATED CLOS	ASSESSMENT	PROJECT	RUBRIC	SESSION	REMARK
PO5: Model Tool Usage	DCC2052 Introduction to Industrialised Building System (IBS)	Evaluates appropriateness of IBS Score and modular coordination precisely for a building structure. (P4, PLO5) (P4, PO5)	MINI PROJECT - 20%	ECO BRICK MAKING	Rubric # 1 Rubric # 2	SESSION JUNE 2019	SUCCESSFULLY IMPLEMENTED  (2000 Eco Brick)
PO6: Engineer In Society		Organizes information in decision making and recommendation through balances societal and technical consideration to complete practical/project. (A2,PLO7) (P3,PO6)					

PO	COURSES	RELATED CLOS	ASSESSMENT	PROJECT	RUBRIC	SESSION	REMARK
PO8: Ethics	DCC6232 Environmental Pollution and Control	Determine an understanding of Environmental Quality Act 1974 in relation to the real-based problems of environmental pollution with respect to professionalism, ethics and moral effectively.(A4,PLO10) (C5,PO8)	MINI PROJECT - 40%	ECO VENTI MAKING	Rubric # 5 Rubric # 6	SESSION JUNE 2019	SUCCESSFULLY IMPLEMENTED  (16 unit Eco-venti size 3ft x 4ft)
PO7: Environment & Sustainability		Considers sustainability between the concepts and techniques to control and monitor the environmental pollution according to the standard requirement. (C4, PLO3) (A2,PO7)					

PO	COURSES	RELATED CLOS	ASSESSMENT	PROJECT	RUBRIC	SESSION	REMARK
PLO5: Morden tools usage	DCC 40132 Project Management & Practices	Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities. (P3, PLO5)	MINI PROJECT -20%	PLANNING MSP, ECO SLAB, BEAM & COLUMN CONSTRUCTION	Rubric # 11 Rubric # 12	SESSION JUNE 2020	
PLO11: Project Management & Finance		Perform efficient management of time and resources in civil engineering field. (A2, PLO11)					

# COURSE MAPPING

## DCC2052 INTRODUCTION TO INDUSTRIALISED BUILDING

WEEK	DATE	TOPICS
REG. WEEK	24.06.2019 - 28.06.2019	Registration & Project Briefings
Week 1	01.07.2019 - 05.07.2019	Introduction To Industrialised Building System
Week 2	08.07.2019 - 12.07.2019	Introduction To Industrialised Building System (MINI PROJECT)
Week 3	15.07.2019 - 19.07.2019	Introduction To Industrialised Building System (MINI PROJECT)
Week 4	22.07.2019 - 26.07.2019	Precast Components of Industrialised Building System (MINI PROJECT)
Week 5	29.07.2019 - 02.08.2019	Precast Components of Industrialised Building System (MINI PROJECT)
Week 6	05.08.2019 - 09.08.2019	Precast Components of Industrialised Building System (MINI PROJECT)
Week 7	19.08.2019 - 22.08.2019	Precast Components of Industrialised Building System (MINI PROJECT- SUBMISSION)
Week 8	26.08.2019 - 30.08.2019	Modular Coordination
Week 9	02.09.2019 - 06.09.2019	Modular Coordination
Week 10	09.09.2019 - 13.09.2019	Modular Coordination
Week 11	16.09.2019 - 20.09.2019	Modular Coordination
Week 12	23.09.2019 - 27.09.2019	Buildability Of Designs
Week 13	30.09.2019 - 04.09.2019	Buildability Of Designs
Week 14	07.10.2019 - 11.10.2019	Buildability Of Designs
Week 15	14.10.2019 - 18.10.2019	Buildability Of Designs
Week 16	21.10.2019 - 27.10.2019	Presentation & Case Study Submission

# COURSE MAPPING

## DCC6232 ENVIRONMENTAL POLLUTION & CONTROL

WEEK	DATE	TOPICS
REG. WEEK	24.06.2019 - 28.06.2019	Registration & Project Briefing
Week 1	01.07.2019 - 05.07.2019	Public Health
Week 2	08.07.2019 - 12.07.2019	Public Health
Week 3	15.07.2019 - 19.07.2019	Water Pollution
Week 4	22.07.2019 - 26.07.2019	Water Pollution
Week 5	29.07.2019 - 02.08.2019	Water Pollution
Week 6	05.08.2019 - 09.08.2019	Air Pollution
Week 7	19.08.2019 - 22.08.2019	Air Pollution
Week 8	26.08.2019 - 30.08.2019	Mid Semester Break
Week 9	02.09.2019 - 06.09.2019	Air Pollution
Week 10	09.09.2019 - 13.09.2019	Noise Pollution
Week 11	16.09.2019 - 20.09.2019	Noise Pollution
Week 12	23.09.2019 - 27.09.2019	Municipal Solid Waste Management
Week 13	30.09.2019 - 04.09.2019	Municipal Solid Waste Management
Week 14	07.10.2019 - 11.10.2019	Municipal Solid Waste Management
Week 15	14.10.2019 - 18.10.2019	Hazardous Waste Management
Week 16	21.10.2019 - 27.10.2019	Hazardous Waste Management

# COURSE MAPPING

DCC40132 PROJECT MANAGEMENT & PRACTICES

WEEK	TOPICS
REG. WEEK	REGISTRATION & PROJECT BRIEFING
WEEK 1	Chapter 1: Introduction
WEEK 2	Chapter 1: Introduction (cont.) Chapter 2: Project Life Cycle
WEEK 3	Chapter 2: Project Life Cycle
WEEK 4	Chapter 3: Site Supervision and Organization
WEEK 5	Chapter 3: Site Supervision and Organization (cont.) Chapter 4: Site Supervision and Organization
WEEK 6	Chapter 4: Site Supervision and Organization
WEEK 7	Chapter 4: Site Supervision and Organization
WEEK 8	Chapter 4: Site Supervision and Organization
WEEK 9	Chapter 4: Site Supervision and Organization
WEEK 10	Chapter 4: Site Supervision and Organization
WEEK 11	Chapter 4: Site Supervision and Organization
WEEK 12	Chapter 4: Site Supervision and Organization Chapter 5: Project control and Monitoring
WEEK 13	Chapter 5: Project control and Monitoring
WEEK 14	Chapter 5: Project control and Monitoring

# NOTES OF GUIDANCE

## ECO KIOSK



## ECO KIOSK PROJECT

DCC2052  
INTRODUCTION TO INDUSTRIALISED  
BUILDING SYSTEM



KEMENTERIAN PENGAJIAN TINGGI



# *Notes of Guidance* **GUIDANCE**

**DCC2052**

**Introduction to Industrialized Building System**

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**DIPLOMA IN CIVIL ENGINEERING  
POLITEKNIK PORT DICKSON  
KEMENTERIAN PENGAJIAN TINGGI**

**NOG**



This Notes of Guidance (NOG) is designed to meet the needs the requirement of **DCC2502 Introduction to Industrialised Building System** course for Diploma in Civil Engineering programme, which comprises a step-by-step guidance on the implementation of all the assessment related. The NOG presents the complete explanation for the lecturers and students to execute their course in terms of:

- Synopsis
- Programme Educational Objective (PEO)
- Programme Learning Outcome (PLO)
- Programme Outcomes (PO) ETAC
- Learning Outcomes
- Distribution of Student Learning Time
- Teaching Methodology
- Summary
- Weekly Schedule
- Grading (Assessments)
- Assessment Mapping
- References

It is expected that this NOG will be able to assist course lecturers and students as well to plan, manage, organize, and execute their respective learning and teaching process which subsequently able to deliver and perform responsibilities effectively, efficiently, and best in every aspect.

## INTRODUCTION





## ***SYNOPSIS***

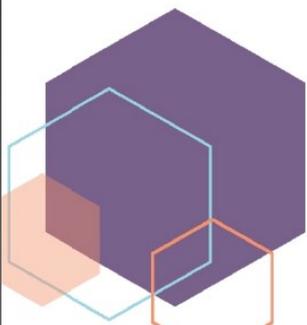
**INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM (IBS)** covers basic concept of IBS concept and components used in the construction industries. Students will learn various forms of creative precast panels and panel production at precast yard erection on site. The students will also be exposed to the concept of modular coordination and buildability of designs.

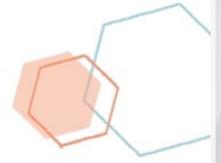


## ***PROGRAMME EDUCATIONAL OBJECTIVE (PEO)***

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

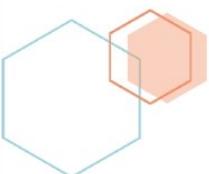
1. Integrate civil engineering principles and develop critical thinking to solve problem in design works and technically competent in engineering fields.
2. Display practical skills and communicate effectively in global work environment
3. Possess in lifelong learning, social responsibilities, entrepreneurship
4. Build leadership and teamwork skills, right attitude, and professional ethics

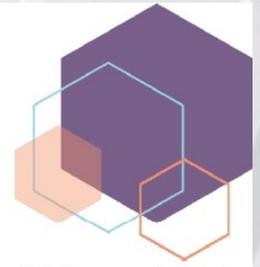




## **PROGRAMME LEARNING OUTCOME (PLO)**

1. Apply technical, mathematics, science and humanities knowledge using appropriate civil engineering problems for individual personality development. **(Application Knowledge)**
2. Solve systematically well-defined civil engineering problems using appropriate methods and technique. **(Problem Solving)**
3. Conduct investigation of well-defined civil engineering problems. **(Analysis and Investigation knowledge)**
4. Assist in designing solution for well-defined civil engineering problems with appropriate consideration for public safety, health, and environment. **(Design Knowledge)**
5. Demonstrate practical skills in utilizing civil engineering tools, equipment, and machinery. **(Practical skill)**
6. Communicate effectively with colleague communities and industries. **(Communication skill)**
7. Demonstrate awareness for society, safety, environment and cultural issues and the consequent responsibilities of sustainable development. **(Social responsibilities)**
8. Work independently in acquisition of new knowledge and skills and recognized the need for professional development and information system. **(Lifelong learning/info management)**
9. Demonstrate awareness in entrepreneurial skills. **(Entrepreneurial)**
10. Demonstrate understanding of professional ethics and responsibilities to the society. **(Professional ethics)**
11. Function effectively as individual and teams with the capability to be a leader. **(Leadership/teamwork skill)**





## **PROGRAMME OUTCOMES (PO) ETAC**

ETAC outcomes are expected student to have the following outcomes, which are stated below:



### **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



### **PROBLEM ANALYSIS**

Identify and analyses well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)



### **DESIGN/DEVELOPEMENT OF SOLUTION**

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)



### **INVESTIGATION**

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



### **MODERN TOOL USAGE**

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



### **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)

Notes of Guidance



**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 contexts (DK7)



**ETHICS**

Understand and commit to professional ethics and responsibilities and norms of technician practice



**INDIVIDUAL AND TEAM WORK**

Function effectively as an individual, and as a member in diverse technical teams



**COMMUNICATIONS**

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.



**PROJECT MANAGEMENT & 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.



**LONG LIFE LEARNING**

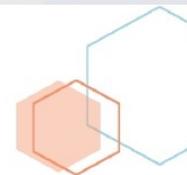
Recognize the need for, and have the ability to engage in independent updating in the context of specialized technical knowledge.



## **LEARNING OUTCOMES**

Upon completion of this course, students should be able to: -

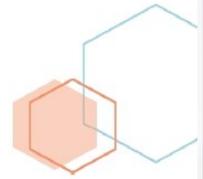
No.	Course Learning Outcome (CLO)	PLO	PO ETAC	LD	Taxonomy
1.	Apply the concept of Industrialised Building System (IBS) including the concepts of precast panel in the system  (C3, PLO1) (C3, P01)	PLO1  (Application Knowledge)	P01  (Knowledge)	LD1	C3
2.	Evaluates appropriateness of IBS Score and modular coordination precisely for a building structure.  (P4, PLO5) (P4, P05)	PLO5  (Practical Skill)	P05  (Modern Tool Usage)	LD2	P4
3.	Organizes information in decision making and recommendation through balances societal and technical consideration to complete practical/project.  (A2, PLO7) (P3, P06)	PLO7  (Society)	P06  (The Engineer and Society)	LD5	A2



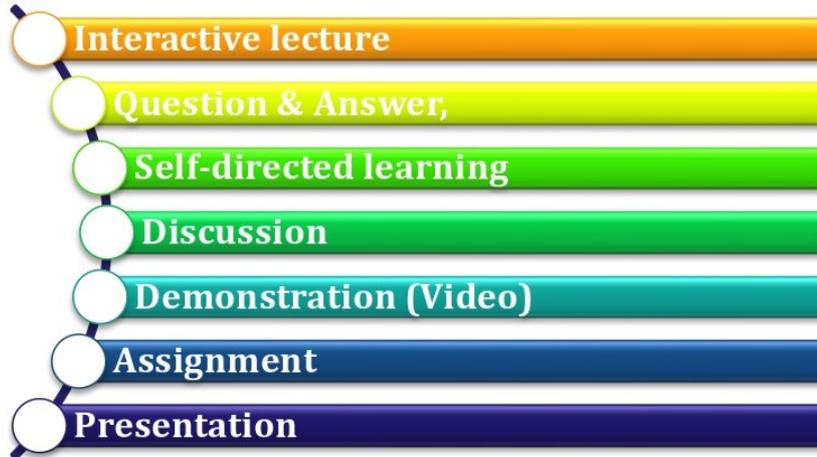
## **DISTRIBUTION OF STUDENT LEARNING TIME**

### **ACCORDING TO COURSE LEARNING - TEACHING ACTIVITY**

No.	Learning and Teaching Activity	SLT
<b>DEPENDENT LEARNING</b>		
1.0	<b><u>Delivery Method</u></b>	
1.1	Lecture	15
1.2	Practical	30
1.3	Tutorial	
2.0	<b><u>Coursework Assessment (CA)</u></b>	
2.1	Lecturer – hour – assessment - Test [2] - Quiz [1]	2
2.2	Practical- hour- assessment - Mini Project [1]	1
2.3	Tutorial – hour – assessment - None	
<b>INDEPENDENT LEARNING</b>		
3.0	<b><u>Coursework Assessment (CA)</u></b> - Case study	2
4.0	<b><u>Preparation and Review</u></b>	
4.1	Lecturer - Preparation before theory class eg: download lesson notes. - Review after theory class eg: additional references, discussion, group discussion	15
4.2	Practical - Preparation before practical class/field work/survey eg: review notes, checklist/lab sheets and /or tools equipment - Post practical activity eg: lab report, additional references and discussion session - Preparation before studio work presentation/critique.	10
4.3	Tutorial - None	
4.4	Assessment - Preparation for test [2] - Preparation for quiz [1] - Preparation for mini project [1]	2 1 2
<b>FINAL EXAMINATION</b>		NA
<b>Total</b>		<b>80</b>
<b>Credit = SLT/40</b>		<b>2</b>
<b>Remarks</b>		
1. Suggested time for Quiz: 10 – 15 minutes Test (Theory): 30 – 60 minutes 2. 40 Hours is equivalent to 1 credit		



## **TEACHING METHODOLOGY**



## **SUMMARY**

- 1.0 INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM (IBS)**
  - This topic covers the basic knowledge of Industrialised Building System (IBS) including the definition, sustainable construction, overview, and evolution. It also includes the types of precast panel, advantages, disadvantages, future; forecast the demand for Industrialised Building System
- 2.0 PRECAST COMPONENTS OF INDUSTRIALISED BUILDING SYSTEM**
  - This topic exposes the students to various forms of creative panels and students are also given guidance to describe precast concrete, prefabrication technology and lightweight concrete. The students will also be exposed to the timber used in IBS construction.
- 3.0 MODULAR COORDINATION**
  - This topic enables the students to learn about the basic and concept of modular coordination and modular design rules. The students will also be exposed to the basic of modular reference system.
- 4.0 BUILDABILITY OF DESIGNS**
  - This topic equips the students with guidance to recognize the general design determinants and illustrate buildability as key elements in building production. It also provides students the knowledge of design principle and enables the students to calculate IBS Score.



## **WEEKLY SCHEDULE**

WEEK	DATE	TOPICS
REG. WEEK	24.06.2019 - 28.06.2019	Registration & Project Brief
Week 1	01.07.2019 -	Introduction To Industrialised Building System
	05.07.2019	
Week 2	08.07.2019 -	Introduction To Industrialised Building System
	12.07.2019	
Week 3	15.07.2019 -	Introduction To Industrialised Building System
	19.07.2019	
Week 4	22.07.2019 -	Precast Components of Industrialised Building System
	26.07.2019	
Week 5	29.07.2019 -	Precast Components of Industrialised Building System
	02.08.2019	
Week 6	05.08.2019 -	Precast Components of Industrialised Building System
	09.08.2019	
Week 7	19.08.2019 -	Precast Components of Industrialised Building System
	22.08.2019	
Week 8	26.08.2019 -	Modular Coordination
	30.08.2019	
Week 9	02.09.2019 -	Modular Coordination
	06.09.2019	
Week 10	09.09.2019 -	Modular Coordination
	13.09.2019	
Week 11	16.09.2019 -	Modular Coordination
	20.09.2019	
Week 12	23.09.2019 -	Buildability Of Designs
	27.09.2019	
Week 13	30.09.2019 -	Buildability Of Designs
	04.10.2019	
Week 14	07.10.2019 -	Buildability Of Designs
	11.10.2019	
Week 15	14.10.2019 -	Buildability Of Designs
	18.10.2019	
Week 16	21.10.2019 -	Presentation & Case Study Submission
	27.10.2019	



## ***GRADING ASSESSMENT***

No	Assessment	Number (minimum)	% Total	Week
1	Test 1 (CLO 1) (C3, PLO1) (KB4, DK3, DP1) Test 2 (C3, PLO1) (KB4, DK3, DP1)	2	40	WEEK 7 TOPIC 1&2  WEEK 15 TOPIC 3&4
2	Quiz (CLO 1) (C3, PLO1) (KB4, DK3, DP1)	1	10	WEEK 7 TOPIC 1&2
3	Case Study (CLO2) (P4, PLO5) (P4, P05) (ET2, DK6, NA5)	1	30	WEEK 8 - WEEK 15 TOPIC 3&4
4	Mini Project (CLO2) (P4, PLO5) (P4, P05) (ET2, DK6, NA5)  (CLO3) (A2, PLO7) (P3, P06) (ES1, DP5, NA1)	1	20	WEEK 2 - WEEK 7 TOPIC 1&2
<b>Overall Total</b>		<b>5</b>	<b>100</b>	





## ASSESSMENT MAPPING

CLO	PO	TOPICS	ASSESSMENT						DK	DP	NA
			TEST (2)		QUIZ (1)	CASE STUDY (1)	MINI PROJECT (1)				
			20%	20%	10%	30%	15%	5%			
1. Apply the concept of Industrialised Building System (IBS) including the concepts of precast panel in the system .(C3,PLO1)(C3,PO1)	1 (KB4)	1,2	/ (20%)		/ (10%)				DK3	DP1	-
		3,4		/ (20%)							
2. Evaluates appropriateness of IBS Score and modular coordination precisely for a building structure. (P4,PLO5)(P4,PO5)	5 (ET2)	3,4			/ (30%)			DK6	-	NA5	
		1,2				/ (15%)					
3. Organizes information in decision making and recommendation through balances societal and technical consideration to complete practical/project. (A2,PLO7) (P3,PO6)	6 (ES1)	1,2					/ (5%)	-	DP5	NA1	



## REFERENCES

- Saeed Banihashemi Namini (2012), **The Integration of Industrialized Building System (IBS) with BIM: A concept and Theory to Improve Construction Industry Productivity**, German, LAP LAMBERT Academic Publishing
- Ibrahim R.dan Ismail (1999), **Modular Coordination**, A Design Guide Towards Open Building System in Malaysia, Kuala Lumpur, Construction Industry Development Board (CIDB).
- **Guide to Modular Coordination in Buildings Part 1: General Principles**, MS 1064 (2001), Kuala Lumpur, Department of Standard Malaysia.
- D.N Trikha, Abdullah Abang Ali (2004), **Industrialised Building System**, Selangor, Universiti Putra Malaysia
- Ahmad Baharuddin Abd. Rahman and Wahid Omar (2006), **Industrialised Building Systems in Malaysia**, Kuala Lumpur. Construction Industry Development Board (CIDB).

# PROJECT BRIEF

## ECO KIOSK



# ECO KIOSK PROJECT

DCC2052  
INTRODUCTION TO INDUSTRIALISED  
BUILDING SYSTEM



KEMENTERIAN PENGAJIAN TINGGI



**MINI**

**PROJECT  
BRIEF**

BRIEF

**DCC2052**

**INTRODUCTION TO  
INDUSTRIALISED  
BUILDING SYSTEM**

**ECO  
BRICK**

**DEPARTMENT OF CIVIL ENGINEERING**

## THE IDEA

Paper is one of the most produced and discarded materials in the world. But while it can easily be recycled, it cannot be reused indefinitely. **Papercrete** is a building material that consists of re-pulped paper fibre added with cement. First patented in 1928, it was revived during the 1980s. Although perceived as an environmentally friendly material due to the significant recycled content, this is offset by the presence of cement.

The paper to be used can come from a variety of including sources, as newspaper, book, used paper, magazine, and others. A mixer is used to pulp the mix. Depending on the type of mixer, the paper may be soaked in water beforehand.

The primary use of structural lightweight concrete is to reduce the dead load of a concrete structure, which then allows the structural designer to reduce the size of column, footing and other load bearing elements.



# THE BRIEF

## REQUIREMENTS

*Mini Project*  
(CLO3) (A2, PLO7) (P3, PO6) (ES1, DP5, NA1)

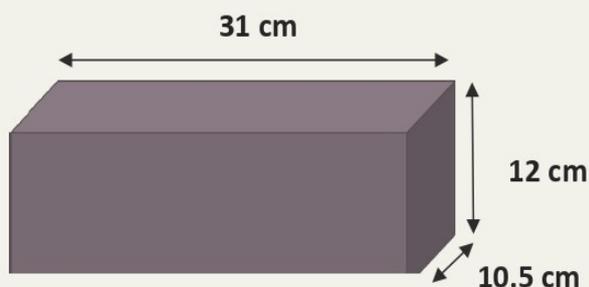
### CLO3

*Organizes information in decision making and recommendation through balances societal and technical consideration to complete practical/project.*

**CREATE A GROUP WITH THE MAXIMUM  
OF THREE (3) PERSONS.**

- Each group member will **produce TEN (10) eco-brick**, which is one of the technologies in lightweight concrete (LWC).
- The size of the brick follows the mould given.
- Papercrete must be completed within 1 week only before the process of casting the brick. (Week 3)
- The project will be implemented in the civil engineering department laboratory. The laboratory group will be as attachment, please follow the laboratory schedule.

Based on your experience in completing the laboratory work, create a **Laboratory Work Report**.



## THE BRIEF

### ECO KIOSK PROJECT

“ECO Kiosk” project is an entrepreneurial infrastructure for students and is one of the attractions of its own sustainability as a building with the theme "Affordable and Able to Build".

It contains 4 business spaces (kiosks) with a size of 10 feet x 10 feet x 10 feet (length x width x height) each. The overall size of the “Eco Kiosk” is 20 feet x 20 feet. It will be a place for students to carry out entrepreneurial activities that generate income as well as be a centre / medium of current learning that can provide a large space for the development of research based on waste material.

Eco kiosks are sustainable construction because they use mechanisms, methods and construction materials that reduce waste as well as energy consumption. Also, this construction is designed according to the orientation of the ventilation position to get a cooler and brighter interior space. In addition, the economic advantages of eco-kiosks help consumers save on electricity bills.

This project has entrepreneurial value relevant to the field of Civil Engineering. It not only preserves its own sustainability but also helps reduce the rising cost of housing. In addition, the application of activities with the concept of 3R (reuse, reduce, recycle), such as reuse programs, reduction activities sourced through the separation of recycled materials from waste piles and industrial recycling as a medium for current learning not only generates income but also provides a large space to the development of waste -based research.

Answer all the questions provided and explain clearly in your **Laboratory Work Report**.

### Question 1

- a. Identification of existing brick/block.
- b. State the definition of brick/block.
- c. What is the standard size of brick/block?

### Question 2

- a. What is eco brick? Explained with the picture aid.
- b. What is Paper Crete? Explained with the picture aid.
- c. Explain THREE (3) advantages of eco brick.
- d. Explain THREE (3) disadvantages of eco brick.
- e. Relate the advantages of Paper Crete in the construction industry.

### Question 3

- a. Discuss among your group member; come out with FOUR (4) problems that occur on site during eco brick-making process.
- b. Provide a concise and concise explanation of the improvements that need to be made during the eco brick-manufacturing process (not less than 300 words in single paragraph)

## Submission Requirements

- Please submit this mini project, 4 weeks after this task was given together with the provided rubric. (Week 7)
- Label the bricks with your full name and registration number. Ten (10) bricks for each person.
- Font: Arial, 11 pt., Title Bold
- Line and paragraph: Justify, 1.15 spacing
- Labelled diagrams and figure if needed
- Location for brick submission will be inform later.

## ***IMPORTANT DATES (WEEK) OF EACH ASSESSMENT***

### **DCC2052 INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM**

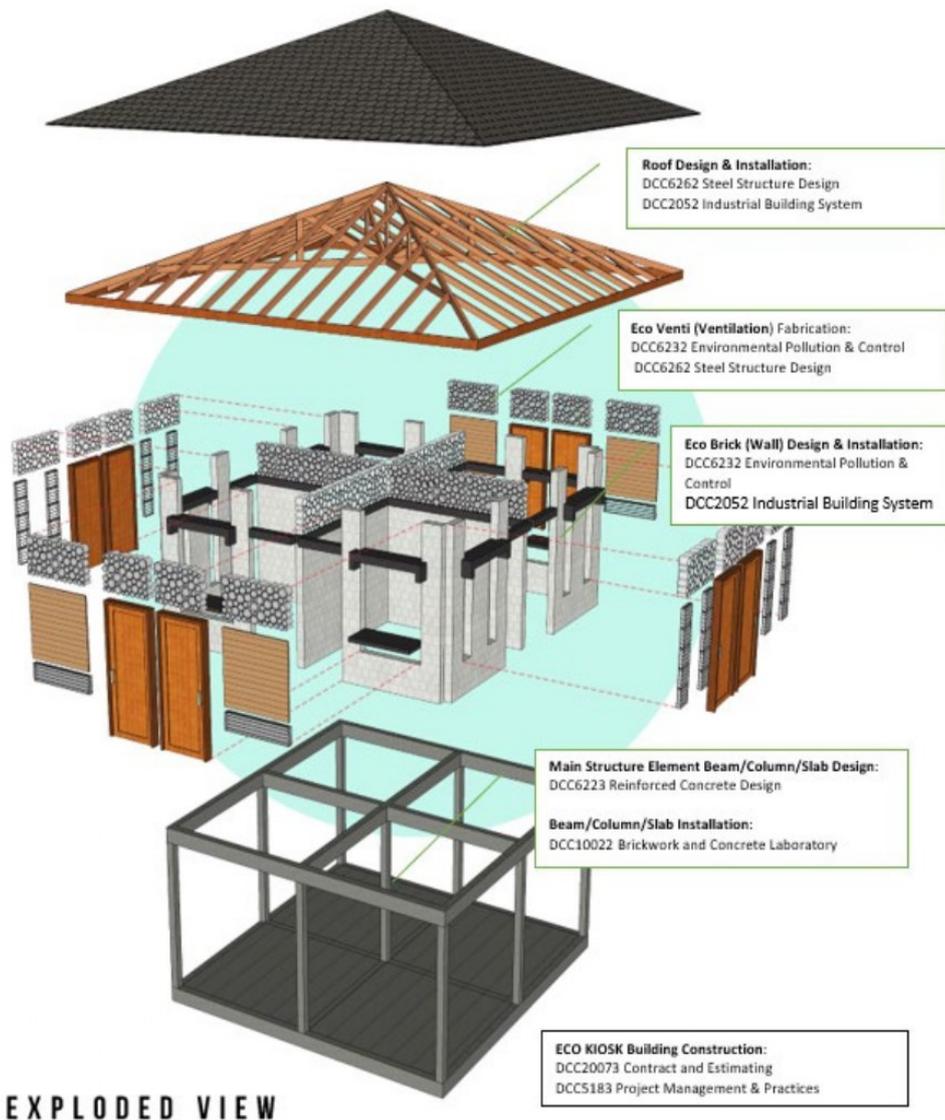
No	Assessment	Number (minimum)	% Total	Week
<b>1</b>	Test 1 (CLO 1) (C3, PLO1) (KB4, DK3, DP1)	2	40	WEEK 7 TOPIC 1&2
	Test 2 (C3, PLO1) (KB4, DK3, DP1)			WEEK 15 TOPIC 3&4
<b>2</b>	Quiz (CLO 1) (C3, PLO1) (KB4, DK3, DP1)	1	10	WEEK 7 TOPIC 1&2
<b>3</b>	Case Study (CLO2) (P4, PLO5) (P4, PO5) (ET2, DK6, NA5)	1	30	WEEK 8 - WEEK 15 TOPIC 3&4
<b>4</b>	Mini Project (CLO2) (P4, PLO5) (P4, PO5) (ET2, DK6, NA5)	1	20	WEEK 2 - WEEK 7 TOPIC 1&2
	(CLO3) (A2, PLO7) (P3, PO6) (ES1, DP5, NA1)			
<b>Overall Total</b>		<b>5</b>	<b>100</b>	

WEEK	DATE	TOPICS
Week 2	08.07.2019	Mini Project (Briefing)
	- 12.07.2019	
Week 3	15.07.2019	Mini Project (Papercrete Process)
	- 19-07.2019	
Week 4	22.07.2019	Mini Project (Eco Brick Process)
	- 26.07.2019	
Week 5	29.07.2019	Mini Project (Eco Brick Process)
	- 02.08.2019	
Week 6	05.08.2019	Mini Project (Eco Brick Process)
	- 09.08.2019	
Week 7	19.08.2019	Mini Project (Eco Brick Process & submission week)
	- 22.08.2019	

## Material Production

No	Material	Weight (kg)	Ratio	Remark
1				
2				
3				
4				
5				

## ECO KIOSK



## ECO KIOSK



# ECO KIOSK PROJECT

DCC2052  
INTRODUCTION TO INDUSTRIALISED  
BUILDING SYSTEM



**DCC2052 INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM  
RUBRIC FOR ASSESSING MINI PROJECT  
CLO3A (A2, PLO7) (P3, PO6)**



CLO03A	Organizes information in decision making and recommendation with participants and cooperation through balances societal and technical consideration to complete practical/project (A2,PLO7) (P3,PO6)
Indicator	Organizes information in decision making and recommendation to protect public and public interest. (ES1)
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); ES - ENGINEERR AND SOCIETY

CLO	ASSESSMENT	ATTRIBUTE	SUB ATTRIBUTE	RUBRIC SCALES					MARKS	FULL MARKS
				EXCELLENT 5	GOOD 4	FAIR 3	WEAK 2	VERY WEAK 1		
CLO03A	MINI PROJECT	Organise Engineering Knowledge & Society	Ethical Decision Making	Fully understanding of and effective in addressing issues related to integrity and ethics. Decisions and recommendation are supported and discussed along with elaboration and explanation.	Clear understanding of and effective in addressing issues related to integrity and ethics. Most decisions and recommendation are supported and can be justified. Some elaboration and explanation given.	Deficiencies in appreciation and/or understanding of professional integrity and/or ethics. More decision and recommendation can be justified. Not able to elaborate or explain.	Serious deficiencies in appreciation and/or understanding of professional integrity and/or ethics. No decision and recommendation can be justified. Not able to elaborate or explain.	No evidence of any appreciation and/or understanding of professional integrity and/or ethics. No decision and recommendation can be justified. Not able to elaborate or explain.		
			Safety and Health Issue	Fully understanding of health and safety issues leading to sound and supported results.	Clear understanding of health and safety issue. Mostly effective in achieving supported results.	Deficiencies in addressing health and safety issues leading to unsupported and/or infeasible result.	Serious deficiencies in addressing health and safety issues leading to unsupported and/or infeasible result.	No understanding or appreciation of safety and health related issues.		
			Environmental Aspects	Fully understanding of environmental aspects. Effective in addressing of environmental issues leading to a better result.	Clear understanding of environmental aspects. Mostly effective in addressing of environmental issues leading to a better result.	Deficiencies in addressing of environmental aspects. Little effective in addressing of environmental issues leading to a result.	Environmental aspects are addresses ineffectively and little or no effect on end results.	No understanding or appreciation of the importance of environmental concerns.		
			Public Interest & Societal Impact	Fully understanding of public interest and societal interest impact. Effective evaluation of engineering project impact support and explain results.	Clear understanding of public interest and societal interest impact. Mostly effective evaluation of engineering project impact support and to improved results.	Deficiencies in understanding of public interest and societal interest impact. Little effective evaluation of engineering project impact support and improved results.	Serious deficiencies in understanding of public interest and societal interest impact. Ineffective evaluation of impact of engineering project adversely affects result.	No consideration of public interest and societal interest impact. None or erroneous evaluation of global effects of engineering project.		
TOTAL										/100%

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC2052**

CLO02P	Evaluates appropriateness of IBS SCORE and Modular Coordination Precisely for a building structure
Indicator	ET2 (P4) - Perform appropriate instrumentation/measurement techniques/models/simulations P4
PO5	Modern Tool Usage: Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6); ET - ENGINEERING TOOL

CLO	ASSESSMENT	ATTRIBUTE	SUB ATTRIBUTE	RUBRIC SCALES					MARKS	FULL MARKS
				VERY WEAK 1	WEAK 2	FAIR 3	GOOD 4	EXCELLENT 5		
CLO02P	MINI PROJECT	APPARATUS/ EQUIPMENT HANDLING	Selection	Less than 40% of apparatus selected correctly according to the procedure	At least 40% of apparatus selected correctly according to the procedure	At least 60% of apparatus selected correctly according to the procedure	At least 80% of apparatus selected correctly according to the procedure	Apparatus selected correctly according to the procedure		
		MEASURING IBS COMPONENT ON POSITION	Quality and accuracy	Measurements and fixes are inaccurate and imprecise and too failure in alignment aspects even with assistance.	Measurements and fixes are inaccurate and imprecise and too failure in alignment aspects.	Measurements and fixes are accurate using a limited tools and some failure in alignment aspects.	Measurements and fixes are mostly accurate using variety tools and	Measurements and fixes are both accurate using variety tools and correctly in alignment aspects.		
		APPLY SAFETY RULES	Practising safety through out lab / workshop / site	Fail to use safety protective equipment as required to protect self and others and totally act without safety	Fail to use safety protective equipment as required to protect self and others	Able to use safety protective equipment as required to protect self and others	Always to use safety protective equipment as required to protect self and others	High ability to use safety protective equipment as required to protect self and others		
		PRODUCT	Functional	Does not finish the product and below the minimum function	Does not finish the product but meet few functional	Finish the product with complete all part and meet minimum functional	Finish the product with complete all part and well function.	Finish the product with complete all part, well function and is aesthetical pleasing.		
TOTAL										/100%

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC2052**

# NOTES OF GUIDANCE

## ECO KIOSK



## ECO KIOSK PROJECT

DCC6232  
ENVIRONMENTAL POLLUTION &  
CONTROL



KEMENTERIAN PENGAJIAN TINGGI



# *Notes of Guidance* **GUIDANCE**

**DCC6232**

**Environmental Pollution & Control**

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**DIPLOMA IN CIVIL ENGINEERING  
POLITEKNIK PORT DICKSON  
KEMENTERIAN PENGAJIAN TINGGI**



**NOG**



This Notes of Guidance (NOG) is designed to meet the needs the requirement of **DCC6232 Environmental Pollution & Control** for Diploma in Civil Engineering programme, which comprises a step-by-step guidance on the implementation of all the assessment related. The NOG presents the complete explanation for the lecturers and students to execute their course in terms of:

- Synopsis
- Programme Educational Objective (PEO)
- Programme Learning Outcome (PLO)
- Programme Outcomes (PO) ETAC
- Learning Outcomes
- Distribution of Student Learning Time
- Teaching Methodology
- Summary
- Weekly Schedule
- Grading (Assessments)
- Assessment Mapping
- References

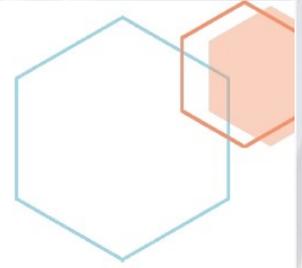
It is expected that this NOG will be able to assist course lecturers and students as well to plan, manage, organize, and execute their respective learning and teaching process which subsequently able to deliver and perform responsibilities effectively, efficiently, and best in every aspect.

## INTRODUCTION





## ***SYNOPSIS***



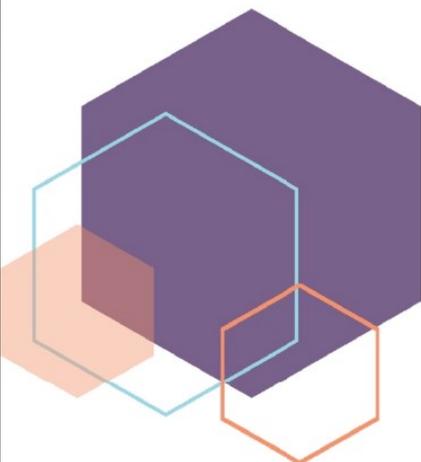
**ENVIRONMENTAL POLLUTION & CONTROL** is a study on types and effects of communicable and non-communicable diseases to public health. It also emphasize on the control and monitoring of pollution from water, air and noise and the effects to general health and environment. It also covers the knowledge 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.

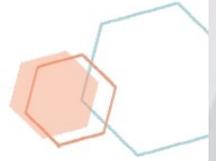


## ***PROGRAMME EDUCATIONAL OBJECTIVE (PEO)***

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

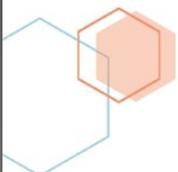
1. Integrate civil engineering principles and develop critical thinking to solve problem in design works and technically competent in engineering fields.
2. Display practical skills and communicate effectively in global work environment
3. Possess in lifelong learning, social responsibilities, entrepreneurship
4. Build leadership and teamwork skills, right attitude, and professional ethics

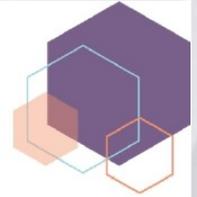




## ***PROGRAMME LEARNING OUTCOME (PLO)***

1. Apply technical, mathematics, science and humanities knowledge using appropriate civil engineering problems for individual personality development. **(Application Knowledge)**
2. Solve systematically well-defined civil engineering problems using appropriate methods and technique. **(Problem Solving)**
3. Conduct investigation of well-defined civil engineering problems. **(Analysis and Investigation knowledge)**
4. Assist in designing solution for well-defined civil engineering problems with appropriate consideration for public safety, health, and environment. **(Design Knowledge)**
5. Demonstrate practical skills in utilizing civil engineering tools, equipment, and machinery. **(Practical skill)**
6. Communicate effectively with colleague communities and industries. **(Communication skill)**
7. Demonstrate awareness for society, safety, environment and cultural issues and the consequent responsibilities of sustainable development. **(Social responsibilities)**
8. Work independently in acquisition of new knowledge and skills and recognized the need for professional development and information system. **(Lifelong learning/info management)**
9. Demonstrate awareness in entrepreneurial skills. **(Entrepreneurial)**
10. Demonstrate understanding of professional ethics and responsibilities to the society. **(Professional ethics)**





## **PROGRAMME OUTCOMES (PO) ETAC**

ETAC outcomes are expected student to have the following outcomes, which are stated below:



### **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



### **PROBLEM ANALYSIS**

Identify and analyses well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)



### **DESIGN/DEVELOPEMENT OF SOLUTION**

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)



### **INVESTIGATION**

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



### **MODERN TOOL USAGE**

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



### **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)



**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 contexts (DK7)



**ETHICS**

Understand and commit to professional ethics and responsibilities and norms of technician practice



**INDIVIDUAL AND TEAM WORK**

Function effectively as an individual, and as a member in diverse technical teams



**COMMUNICATIONS**

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.



**PROJECT MANAGEMENT & 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.



**LONG LIFE LEARNING**

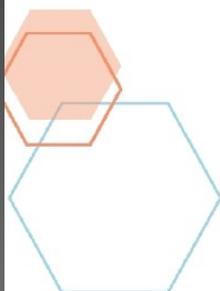
Recognize the need for, and have the ability to engage in independent updating in the context of specialized technical knowledge.

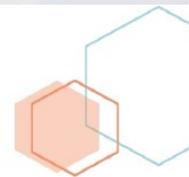


## LEARNING OUTCOMES

Upon completion of this course, students should be able to: -

No.	Course Learning Outcome (CLO)	PLO	PO ETAC	LD	Taxonomy
1.	Comprehend and applies related knowledge of public health, environmental pollution, and waste management appropriately.  (C3, PLO1) (C3, P01)	PLO1  (Application Knowledge)	P01  (Knowledge)	LD1	C3
2.	Determine an understanding of Environmental Quality Act 1974 in relation to the real-based problems of environmental pollution with respect to professionalism, ethics and moral effectively.  (A4, PLO10) (C5, P08)	PLO10  (Ethics)	P08  (Modern Tool Usage)	LD8	C5
3.	Considers sustainability between the concepts and techniques to control and monitor the environmental pollution according to the standard requirement.  (C4, PLO3) (A2, P07)	PLO3  (Environment and sustainability)	P07  (The Engineer and Society)	LD1	A2

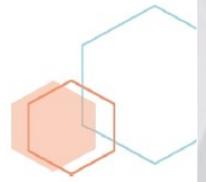




## ***DISTRIBUTION OF STUDENT LEARNING TIME***

### **ACCORDING TO COURSE LEARNING - TEACHING ACTIVITY**

No.	Learning and Teaching Activity	SLT
<b>DEPENDENT LEARNING</b>		
1.0	<b><u>Delivery Method</u></b>	
1.1	Lecture	30
1.2	Practical	
1.3	Tutorial	
2.0	<b><u>Coursework Assessment (CA)</u></b>	
2.1	Lecturer – hour – assessment - Test [2]	2
2.2	Practical – hour – assessment - None	
2.3	Tutorial – hour – assessment - None	
<b>INDEPENDENT LEARNING</b>		
3.0	<b><u>Coursework Assessment (CA)</u></b> - Case Study [1] - Mini Project [1] - Assignment [1]	5 5 5
4.0	<b><u>Preparation and Review</u></b>	
4.1	Lecturer - Preparation before theory class eg: download lesson notes. - Review after theory class eg: additional references, discussion	30
4.2	Practical - None	
4.3	Tutorial - None	
4.4	Assessment - Preparation for test [2]	3
<b>FINAL EXAMINATION</b>		NA
<b>Total</b>		<b>80</b>
<b>Credit = SLT/40</b>		<b>2</b>
<b>Remarks</b>		
<ol style="list-style-type: none"> <li>Suggested time for            Quiz: 10 – 15 minutes            Test (Theory): 20 – 30 minutes            Test (practical): 45 to 60 minutes</li> <li>4 Hours is equivalent to 1 credit</li> </ol>		



## TEACHING METHODOLOGY



## SUMMARY

<p>1.0 PUBLIC HEALTH</p>	<ul style="list-style-type: none"> <li>This topic expose the students about communicable disease and non-communicable diseases. Responsible authorities- Ministry of Health, Local Authority</li> </ul>
<p>2.0 WATER POLLUTION</p>	<ul style="list-style-type: none"> <li>This topic exposes the students the classification of sources of pollution. Heat pollution and its effects. Soil erosion and its effects. Erosion control. The process of self-cleaning, Mass balance, Dissolved Oxygen profile and Eutrophication process. Sources of water pollution. Sea pollution</li> </ul>
<p>3.0 AIR POLLUTION</p>	<ul style="list-style-type: none"> <li>This topic enables the students to learnThis topic introduces basic aspects of air pollution including the definition of air pollution, composition of air and types of pollutants. History of air pollution in Malaysia and other countries will be covered. Awareness of air pollution will be developed in this topic. Environmental Quality Act 1974.The types of pollution and the effects. Green house phenomena. Indoor air pollution. Air pollution control. Sources of indoor and outdoor pollution. Guidelines and standard of this pollution will be discussed. Determination of Air Pollution Index.</li> </ul>
<p>4.0 NOISE POLLUTION</p>	<ul style="list-style-type: none"> <li>This topic will explain the scope of noise including definition of noise, noise standard, level of noise pollution in the environment, definition of noise pollution and noise pollution criteria. The effects of noise pollution. The method of insulating noise pollution. Pollution control equipment</li> </ul>
<p>5.0 MUNICIPAL SOLID WASTE MANAGEMENT</p>	<ul style="list-style-type: none"> <li>This topic enables the students to learn about The characteristics of hazardous waste. Environment Quality Act 1974.Processing of hazardous waste. Methods of disposal. Sanitary landfills</li> </ul>
<p>6.0 HAZARDOUS WASTE MANAGEMENT</p>	<ul style="list-style-type: none"> <li>This topic will explain the characteristics of hazardous waste. Environment Quality Act 1974.Processing of hazardous waste. Methods of disposal. Secured landfills</li> </ul>



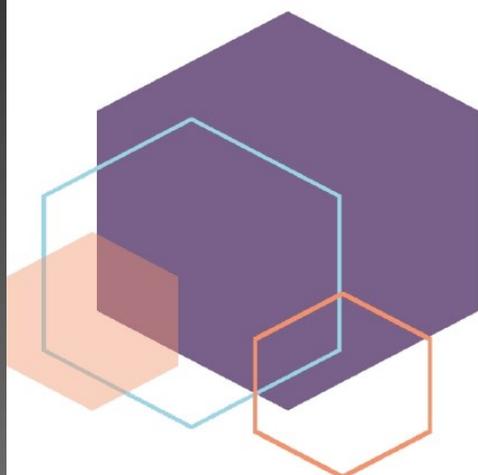
## WEEKLY SCHEDULE

WEEK	DATE	TOPICS
<b>REG. WEEK</b>	<b>24.06.2019</b> - <b>28.06.2019</b>	Registration & Project Brief
<b>Week 1</b>	<b>01.07.2019</b> - <b>05.07.2019</b>	Public Health
<b>Week 2</b>	<b>08.07.2019</b> - <b>12.07.2019</b>	Public Health
<b>Week 3</b>	<b>15.07.2019</b> - <b>19.07.2019</b>	Water Pollution
<b>Week 4</b>	<b>22.07.2019</b> - <b>26.07.2019</b>	Water Pollution
<b>Week 5</b>	<b>29.07.2019</b> - <b>02.08.2019</b>	Water Pollution
<b>Week 6</b>	<b>05.08.2019</b> - <b>09.08.2019</b>	Air Pollution
<b>Week 7</b>	<b>19.08.2019</b> - <b>22.08.2019</b>	Air Pollution
<b>Week 8</b>	<b>26.08.2019</b> - <b>30.08.2019</b>	Mid Semester Break
<b>Week 9</b>	<b>02.09.2019</b> - <b>06.09.2019</b>	Air Pollution
<b>Week 10</b>	<b>09.09.2019</b> - <b>13.09.2019</b>	Noise Pollution
<b>Week 11</b>	<b>16.09.2019</b> - <b>20.09.2019</b>	Noise Pollution
<b>Week 12</b>	<b>23.09.2019</b> - <b>27.09.2019</b>	Municipal Solid Waste Management
<b>Week 13</b>	<b>30.09.2019</b> - <b>04.10.2019</b>	Municipal Solid Waste Management
<b>Week 14</b>	<b>07.10.2019</b> - <b>11.10.2019</b>	Municipal Solid Waste Management
<b>Week 15</b>	<b>14.10.2019</b> - <b>18.10.2019</b>	Hazardous Waste Management
<b>Week 16</b>	<b>21.10.2019</b> - <b>27.10.2019</b>	Hazardous Waste Management



## GRADING ASSESSMENT

No	Assessment	Number (minimum)	% Total	Week
1	TEST 1 [PO1, CLO1, C3, KB5, DK4]	2	20	WEEK 7 TEST1 (TOPIC 1-2)
	TEST 2 [PO1, CLO1, C3, KB5, DK4]			WEEK 11 TEST 2 (TOPIC 3-4)
2	ASSIGNMENT [PO1, CLO1, C3, KB5, DK4]	1	10	WEEK 13 (TOPIC 5-6)
3	CASE STUDY [PO8, CLO2, C5, PE1, DK7, DP5] [PO7, CLO3, C4, EN2, NA5]	1	30	WEEK 7 (Topic 2 - 6)
4	MINI PROJECT [PO8, CLO2, C5, PE1, DK7, DP5] [PO7, CLO3, C4, EN2, NA5]	1	40	WEEK 9 (Topic 2 - 6)
<b>Overall Total</b>		<b>5</b>	<b>100</b>	





## ASSESSMENT MAPPING

ASSESSMENT MAPPING									
Course Learning Outcome (CLO)	PO	TOPICS	ASSESSMENT				DK	DP	NA
			TEST (2)	ASSIGNMENT (1)	CASE STUDY (1)	MINI PROJECT (1)			
			20%	10%	30%	40%			
1. comprehend and applies related knowledge of public health, environmental pollution and waste management appropriately.(C3, PLO1) (C3, PO1)	1 (KB5)	1-2	/				DK4	-	-
		3-4	/					-	-
		5,6		/				-	-
2. determine an understanding of Environmental Quality Act 1974 in relation to the real-based problems of environmental pollution with respect to professionalism, ethics and moral effectively.(A4, PLO10) (C5, PO8)	7 (PE1)	2,3,4,5,6			/		DK7	-	-
						/		DP5	NA5
3. considers sustainability between the concepts and techniques to control and monitor the environmental pollution according to the standard requirement. (C4, PLO3) (A2, PO7)	8 (EN2)	2,3,4,5,6			/	/	-	-	NA5



## REFERENCES

- Gilbert M. Masters. & Wendell P. Ela (2008). **Introduction to Environmental Engineering and Science (3rd Edition)**. Prentice Hall (ISBN-13:9780131481930)
- Mackenzie Davis, David Cornwell (2012). **Introduction to Environmental Engineering** McGraw-Hill Series in Civil and Environmental Engineering
- Kiely, G. (1996). **Environmental Engineering**. McGraw Hill Veslind, P.A., Peirce, J.J., & Weiner. (Terjemahan Nooraini Jaafar), (1994) Kejuruteraan Alam Sekitar. Universiti Teknologi Malaysia.
- Environment Quality Act, 1974 (Act 127) **Legislation and Order**. International Law Book Services

# PROJECT BRIEF

## ECO KIOSK



# ECO KIOSK PROJECT

DCC6232  
ENVIRONMENTAL POLLUTION & CONTROL



## DEPARTMENT OF CIVIL ENGINEERING

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### THE IDEA

Solid waste is one of the three major environmental problems in Malaysia. It plays a significant role in the ability of Nature to sustain life within its capacity. As of the year of 2008, 23,000 tons of waste is produced each day in Malaysia, with less than 5% of the waste is being recycled. However, this amount is expected to rise to 30,000 tons by the year 2020. In Selangor alone, waste generated in 1997 was over 3000 ton/day and the amount of waste is expected to rise to 5700 ton/day in the year 2017(Yachio Engineering, 2000 cited in Muhd Noor Muhd Yunus, 2000). An alarming 19% of waste ends up in our drains, which then causes flash floods and drainage blockage. This situation has been and will be reducing our environmental capacity to sustain life.

Paper is one of the most produced and discarded materials in the world. But while it can easily be recycled, it cannot be reused indefinitely. Paper Crete is a building material that consists of re-pulped paper fiber added with cement, first patented in 1928, it was revived during the 1980s. Although perceived as an environmentally friendly material due to the significant recycled content, this is offset by the presence of cement. The paper to be used can come from a variety of including sources, as newspaper, book, used paper, magazine, and others. A mixer is used to pulp the mix. Depending on the type of mixer, the paper may be soaked in water beforehand.

Environmental problems related to plastic waste have become a major problem in Malaysia where it has been ranked as 8th among the top ten countries with mismanaged plastic waste in the world. A study estimated that Malaysia had produced 0.94 million tons of mismanaged plastic wastes, of which 0.14 to 0.37 million tons may have been washed into the oceans as reported by (Jenna R. Jambeck et al. 2015). Some studies have also highlighted the potential health effects of single-use plastics on human and animals. Besides that, the Asia Pacific Economic Cooperation (APEC) had estimated USD13 billion impact of marine plastic pollution to the Asia Pacific region (APEC, 2009).

Despite the massive amount and complexity of waste produced, the standards of waste management in Malaysia are still poor. These include outdated documentation of waste generation rates and its composition, inefficient storage and collection systems, disposal of municipal wastes with toxic and hazardous waste, indiscriminate disposal or dumping of wastes and inefficient utilization of disposal site space. Furthermore, the lack of awareness and knowledge among Malaysian community about solid waste management (SWM) issues and being ignorant about the effect that improper SWM has to us has worsened the problem.

## THE BRIEF

### ECO KIOSK PROJECT

"Eco Kiosk" Project means "an economy Kiosk" which is a kiosk that uses less energy than a normal house either during construction or operation. Since the quantity of resources on our planet is limited, denying them will end in disaster. Cooling and heating our homes take a lot of energy. Activities that reduce energy consumption will be top choices if we are meant for the well-being of future generations. Furthermore, the building materials used are made of waste materials and the concept of IBS is applied.

Eco kiosks are sustainable construction because they use mechanisms, methods and construction materials that reduce waste as well as energy consumption. Also, this construction is designed according to the orientation of the ventilation position to get a cooler and brighter interior space. In addition, the economic advantages of eco-kiosks help consumers save on electricity bills.

Eco kiosks project is an entrepreneurial infrastructure for students and is one of the attractions of its own sustainability as a building with the theme "Affordable and able to build". It contains 4 business spaces (kiosks) with a size of 10 feet x 10 feet x 10 feet (length x width x height) each. The overall size of the "Eco Kiosk" is 20 feet x 20 feet. It will be a place for students to carry out entrepreneurial activities that generate income as well as be a center / medium of current learning that can provide a large space for the development of research based on waste material.

This project has entrepreneurial value relevant to the field of Civil Engineering. It not only preserves its own sustainability but also helps reduce the rising cost of housing. In addition, the application of activities with the concept of 3R (reuse, reduce, recycle), such as reuse programs, reduction activities sourced through the separation of recycled materials from waste piles and industrial recycling as a medium for current learning not only generates income but also provides a large space to the development of waste-based research.

## REQUIREMENTS

### PO8: Ethics CLO2

Determine an understanding of Environmental Quality Act 1974 in relation to the real-based problems of environmental pollution with respect to professionalism, ethics and moral effectively. (A4, PLO10) (C5, PO8)

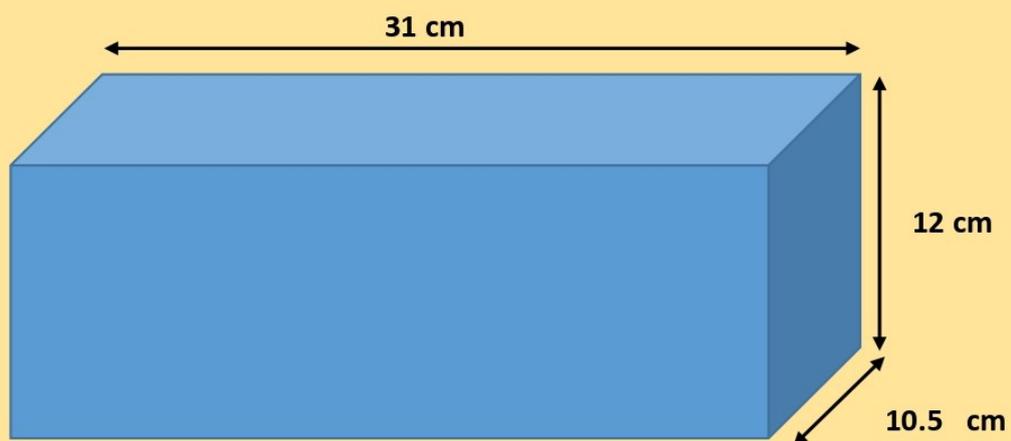
### PO7: Environment & Sustainability CLO 3

Considers sustainability between the concepts and techniques to control and monitor the environmental pollution according to the standard requirement. (C4, PLO3) (A2, PO7)

**CREATE A GROUP WITH THE MAXIMUM OF TWO (2) PERSONS. EACH GROUP WILL PRODUCE ECO BRICK AND ECO VENTILATION**

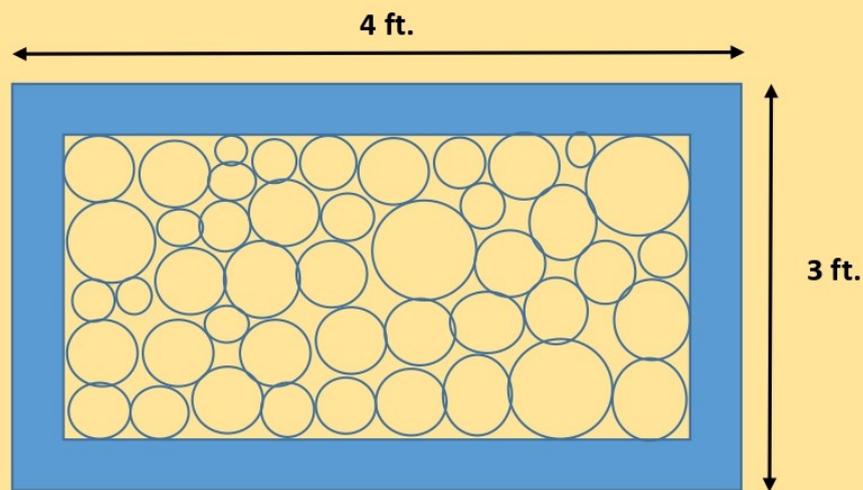
#### a) Task for eco brick

- Each group member will produce TEN (10) eco-brick, which is one of the technologies in lightweight concrete, thermal and sound insulation.
- The size of the brick follows the size of mold given by the lecturer.
- For the Eco brick project, Paper Crete must be completed within 1 week only before the process of casting the brick. (Week 3).
- The project will be implemented in the civil engineering department laboratory. The laboratory group will be as attachment, please follow the laboratory schedule.
- Below is the diagram of Eco brick size.



## b) Task for Eco ventilation

- Each group will produce ONE (1) Eco ventilation, which is one of the ventilation systems available for the eco kiosks.
- For the Eco ventilation, the aluminum frame and adhesive material will be provided by lecturer.
- Every group are required to provide your own recycle plastic pipe which will be attached to the aluminum frame.
- Each group should also provide a used box to be used as a base during the process of installing plastic pipes on the aluminum frame.

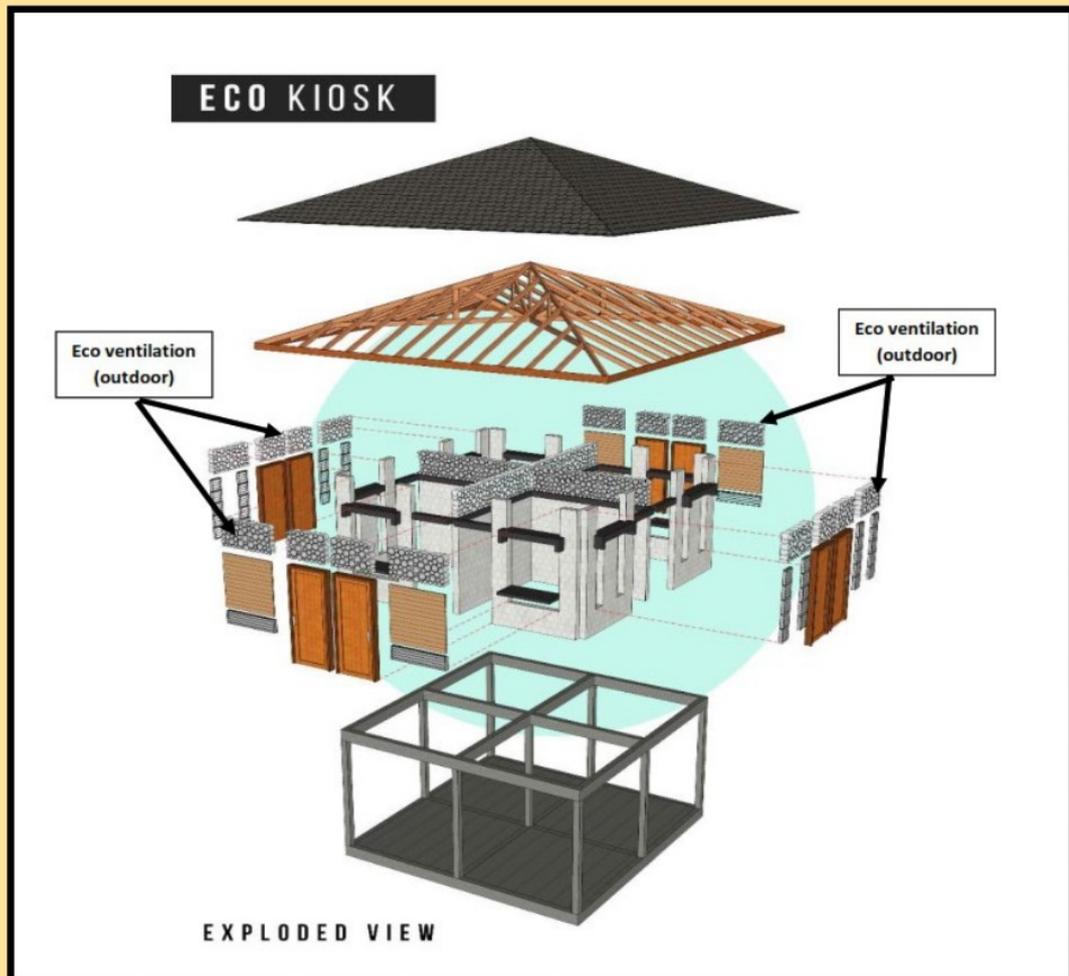


**The report can be written an according to the sequences below :**

- 1.0 Introduction (Global Warming/ Greenhouse Gases)
- 2.0 Greenhouse Gases
  - 2.1 Names of Gases
  - 2.2 Causes / Sources of the Gases
  - 2.3 Impact of the Gases
- 3.0 Green Product (Eco Brick and Eco Ventilation)
  - 3.1 Introduction (Name What/When/Where/Why/Who)
  - 3.2 Construction of the Product (Uses / Picture / Composition of Material / Tools / Molds / Size / Making Procedure)
- 4.0 Product impact/benefit
  - 4.1 Financial (Costing compared so its rival)
  - 4.2 Environmental and sustainability

## SUBMISSION REQUIREMENTS

- Please submit this mini project, 4 weeks after this task was given together with the provided rubric. (Week 7)
- Label the bricks with your full name and registration number. Ten (10) bricks for each person.
- Font: Arial, 11 pt., Title Bold
- Line and paragraph: Justify, 1.15 spacing
- Labelled diagrams and figure if needed
- Location for Eco brick and Eco ventilation submission will be informed later.



**IMPORTANT DATES (WEEK) OF EACH ASSESSMENT  
DCC6232 ENVIRONMENTAL POLLUTION & CONTROL**

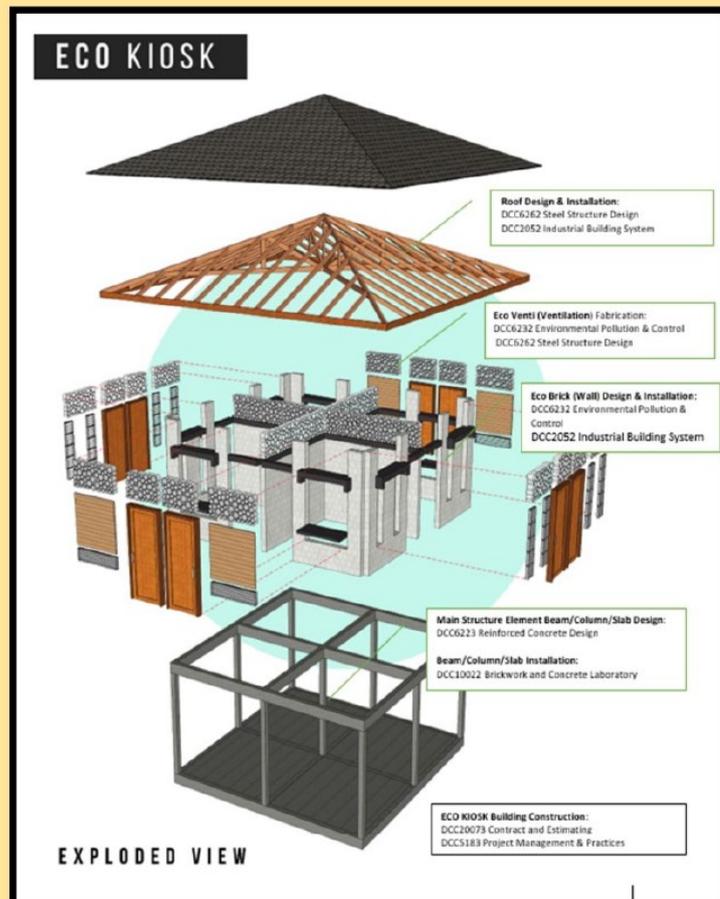
NO	ASSESSMENT	NUMBER (MINIMUM)	% TOTAL	WEEKS
1	<b>TEST 1</b> [PO1, CLO1, C3, KB5, DK4]	2	20	WEEK 7 TEST1 (TOPIC 1-2 )
	<b>TEST 2</b> [PO1, CLO1, C3, KB5, DK4]			WEEK 11 TEST 2 (TOPIC 3-4)
2	<b>ASSIGNMENT</b> [PO1, CLO1, C3, KB5, DK4]	1	10	WEEK 13 (TOPIC 5-6)
3	<b>CASE STUDY</b> [PO8, CLO2, C5, PE1, DK7, DP5] [PO7, CLO3, C4, EN2, NA5]	1	30	WEEK 7 (Topic 2 - 6)
4	<b>MINI PROJECT</b> [PO8, CLO2, C5, PE1, DK7, DP5] [PO7, CLO3, C4, EN2, NA5]	1	40	WEEK 9 (Topic 2 - 6)

WEEK	DATE	TOPICS
Week 9	<b>02.09.2019</b> - <b>06.09.2019</b>	Mini Project (Briefing)
Week 10	<b>09.09.2019</b> - <b>13-09.2019</b>	Mini Project (Papercrete Process)
Week 11	<b>16.09.2019</b> - <b>20.09.2019</b>	Mini Project (Eco Brick Process)
Week 12	<b>22.09.2019</b> - <b>27.09.2019</b>	Mini Project (Eco Brick Process)
Week 113	<b>30.09.2019</b> - <b>04.10.2019</b>	Mini Project (Eco Ventilation Process)
Week 14	<b>07.10.2019</b> - <b>11.10.2019</b>	Mini Project (Submission week)

## MATERIAL PRODUCTION

Group 1/2/3/4/5/6/7/8 /9 / 10:				
No	Name	Matric No	Class	Remark

No	Material	Weight (kg)	Ratio	Remark
1				
2				
3				
4				
5				



## ECO KIOSK



# ECO KIOSK PROJECT

DCC6232  
ENVIRONMENTAL POLLUTION & CONTROL



**DCC6232 RUBRIC FOR ENVIRONMENTAL POLLUTION AND CONTROL  
RUBRIC FOR ASSESSING MINI PROJECT  
CLO3A (A2, PO07)**



CLO3A		Considers sustainability between the concepts and techniques to control and monitor the environmental pollution according to the standard requirement. (C4, PLO3) (A2, PO7)									
Indicator		EH 2 (A2)									
PO07		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.									
CLO	ASSESSMENT	ATTRIBUTE	SUB ATTRIBUTE	RUBRIC SCALES					MARKS	FULL MARKS	
				EXCELLENT 5	GOOD 4	FAIR 3	WEAK 2	VERY WEAK 1			
CLO3A	CASE STUDY	SUSTAINABILITY	Identify issue/problem	Issues/problems are very clear, concise and well identified.	Issues/problems are clear, concise and well identified	Issues/problems are quite clear or concise. Fairly identified	Issues/problems are mostly unclear and not concise. Poorly identified.	Issues/problems are mostly unclear and not concise. Very poorly identified.			
			Understands the social, environmental, economic, health, safety, legal and/or cultural aspects of engineering activities	Considers and evaluates diverse interactions of engineering on society and the environment	Demonstrates understanding of diverse interactions of engineering on society and the environment.	Demonstrates some understanding of diverse interactions of engineering on society and the environment.	Demonstrates minimal understanding of diverse interactions of engineering on society and the environment.	Demonstrates poorly understanding of diverse interactions of engineering on society and the environment.			
			Able to analyze the uncertainties in the prediction of interactions between the different aspects of engineering activities	Fully integrates measures of uncertainty in the sustainability evaluation of engineering designs and projects	Uses methods to measure uncertainty and knows how they can apply in the context of sustainability	Understands that sustainability entails designing for the future which is uncertain	Does not know how sustainability is linked to uncertainty	poorly and does not know how sustainability is linked to uncertainty			
			Evaluation	Supports diagnosis and opinions with strong arguments and evidence; presents a balanced and critical view; interpretation is both reasonable and objective	Supports diagnosis and opinions with reasons and evidence; presents a fairly balanced view; interpretation is both reasonable and objective	Supports diagnosis and opinions with limited reasons and evidence; presents a somewhat one-sided argument	Supports diagnosis and opinions with few reasons and little evidence; argument is one-sided and not objective	Supports diagnosis and opinions with few reasons and no evidence; argument is one-sided and not objective			
			Recommendations	Presents detailed, realistic, and appropriate recommendations clearly supported by the information presented and concepts from the reading	Presents specific, realistic, and appropriate recommendations supported by the information presented and concepts from the reading	Presents realistic or appropriate recommendations supported by the information presented and concepts from the reading	Presents realistic or appropriate recommendations with little, if any, support from the information presented and concepts from the reading	Poor presents or appropriate recommendations, if any, support from the information presented and concepts from the reading			
			Understands and/or applies the concepts of environmental stewardship, sustainable design and sustainable development	Formulates sustainable development into a set of design objectives as well as into evaluation criteria for engineering project alternatives	Demonstrates a good grasp of the three pillars of sustainable development as well as the trade offs between them and Knows how they affect engineering design/implementation	Understands the three dimensions of sustainable development (social justice, environmental preservation, economic growth) but does not know how they relate to engineering	Cannot understand the three dimensions of sustainable development (social justice, environmental preservation, economic growth) but does not know how they relate to engineering	Cannot define sustainable development or sustainable design			
			Writing Mechanics	Writing demonstrates a sophisticated clarity, conciseness, and correctness; includes thorough details and relevant data and information; extremely well-organized	Writing is accomplished in terms of clarity and conciseness and contains only a few errors; includes sufficient details and relevant data and information; well-organized	Writing lacks clarity or conciseness and contains numerous errors; gives insufficient detail and relevant data and information; lacks organization	Writing is unfocused, rambling, or contains serious errors; lacks detail and relevant data and information; very poorly organized	Writing is unfocused, rambling, or contains serious errors; lacks detail and relevant data and information; very poorly organized			
TOTAL											/100%

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC6232**



**DCC6232 RUBRIC FOR ENVIRONMENTAL POLLUTION AND CONTROL  
RUBRIC FOR ASSESSING MINI PROJECT  
CLO2C (C5, PO08)**



CLO2C		Determine and understanding of Environmental Quality Act 1974 in relation to the real-based problems of environmental pollution with respect to professionalism, ethics and moral effectively (A4, PLO10) (C5, PO8)										
Indicator		PE1 (C5)										
PO08		Understand and commit to professional ethics and responsibilities and norms of technician practices										
CLO	ASSESSMENT	ATTRIBUTE	SUB ATTRIBUTE	RUBRIC SCALES					MARKS		FULL MARKS	
				EXCELLENT 5	GOOD 4	FAIR 3	WEAK 2	VERY WEAK 1	S1	S2		
CLO2C	CASE STUDY/ MINI PROJECT	UNDERSTANDING	Awareness of ecological impact	Identifies sustainable strategies that can	Demonstrate how study field impacts to the environment	Identifies which environmental issues are impacted within chosen area of study	Aware of current current environmental issue	Poorly awareness of current environmental issue				
			Environment coservation strategies	Articulate how specific conservation strategies impact our broader environment	Demonstrate effective environmental conservation practices	Demonstrates some understanding of environmental conservation practices	Identifies conservation strategies to address environmental concerns.	Aware of areas of environmental concern.				
			Identify sustainable practices in lean work environment	Identifies emerging technologies/practices that have the potential to streamline of work environment.	Demonstrate sustainable initiatives produce a lean work environment and improve workplace quality of performance.	Uses methods to measure uncertainty and knows how they can apply in the context of sustainability	Identifies which sustainability initiatives can streamline process with field	Aware of different sustainable initiatives in work environmental concern.				
			Social, environmental and health aspects of engineering activities	Considers and evaluate diverse interactions of engineering on society and the environment.	Demonstrates understanding of divers interactions of engineering on society and the environment	Demonstrates some understanding of diverse interactions of engineering on society and environment.	Demonstrates minimal understanding of diverse interactions of engineering on society and environment.	Poorly understanding of diverse interactions of engineering on society and environment.				
TOTAL (100%)												

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC6232**

# NOTE OF GUIDANCE

## ECO KIOSK

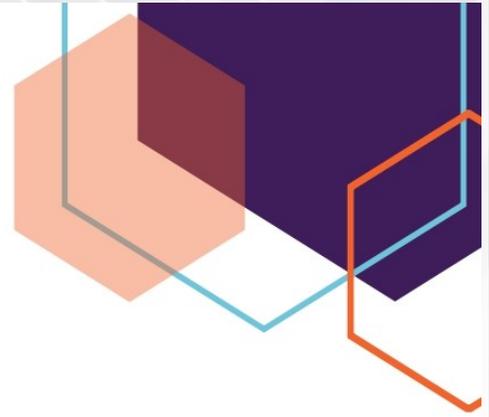


# ECO KIOSK PROJECT

DCC40132  
PROJECT MANAGEMENT & PRACTICES



KEMENTERIAN PENGAJIAN TINGGI

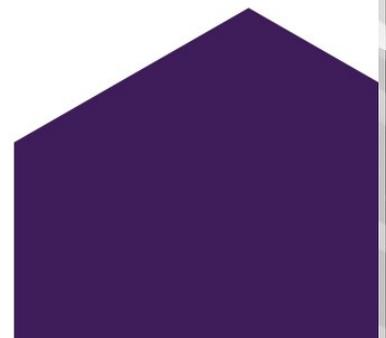
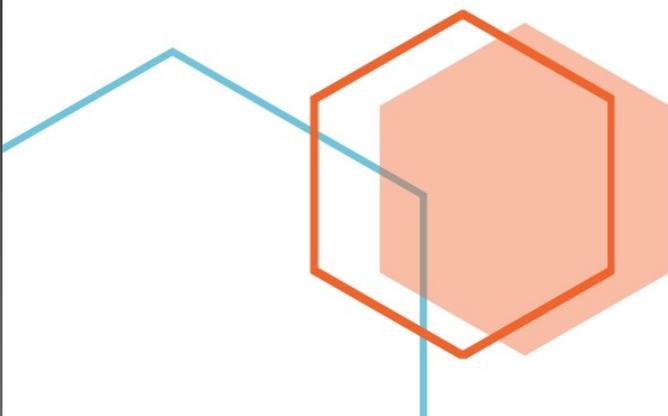


*Notes of Guidance*  
**GUIDANCE**

**DCC40132**  
**Project Management and Practices**

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DIPLOMA IN CIVIL ENGINEERING  
POLITEKNIK PORT DICKSON  
KEMENTERIAN PENGAJIAN TINGGI







## ***SYNOPSIS***

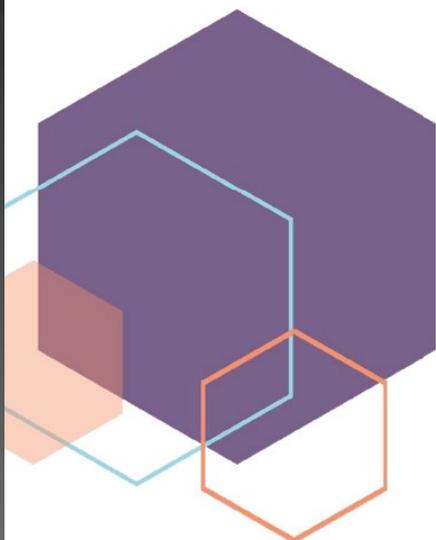
**PROJECT MANAGEMENT AND PRACTICES** focuses on the basic knowledge and understanding of project management. Students will be introduced to the definition and basic concept of project management and practices. Every aspect in project management is explained starting from the overview of project management, 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.

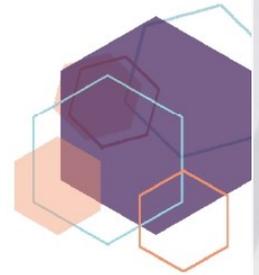


## ***PROGRAMME EDUCATIONAL OBJECTIVE (PEO)***

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

1. Working in the field of civil engineering
2. Lead or a team member to support their role in industries
3. Engaged in activities to enhance knowledge or starting/embark their own enterprise
4. Fulfil professional and communities' responsibilities, conforming to ethical and environmental values





## **PROGRAMME OUTCOMES (PLO) ETAC**

ETAC outcomes are expected student to have the following outcomes, which are stated below:



### **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



### **PROBLEM ANALYSIS**

Identify and analyses well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)



### **DESIGN/DEVELOPMENT OF SOLUTION**

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)



### **INVESTIGATION**

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



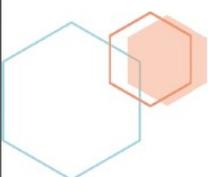
### **MODERN TOOL USAGE**

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



### **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)





**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 contexts (DK7)



**ETHICS**

Understand and commit to professional ethics and responsibilities and norms of technician practice



**INDIVIDUAL AND TEAM WORK**

Function effectively as an individual, and as a member in diverse technical teams



**COMMUNICATIONS**

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.



**PROJECT MANAGEMENT & 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.



**LONG LIFE LEARNING**

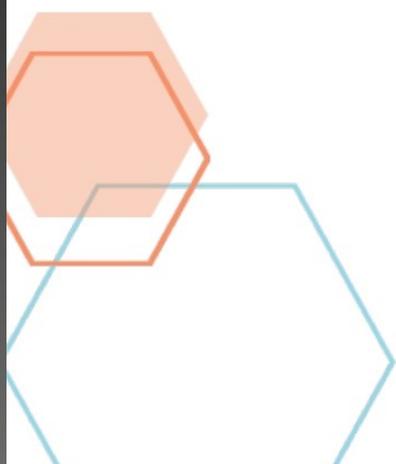
Recognize the need for, and have the ability to engage in independent updating in the context of specialized technical knowledge.

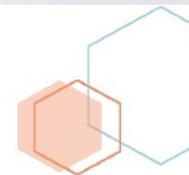


## ***LEARNING OUTCOMES***

Upon completion of this course, students should be able to: -

No.	Course Learning Outcome (CLO)	PO ETAC	Domain Taxonomy
1.	Apply correctly the fundamental engineering concepts of project management. (C3, PL01)	PL01  (Knowledge)	C3
2.	Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities. (P3, PL05)	PL05 (Modern Tool Usage)	P3
3.	Perform efficient management of time and resources in civil engineering field. (A2, PL011)	PL011  (Project Management & Finance)	A2

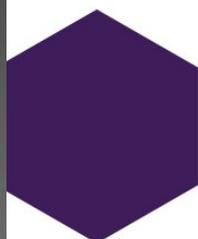




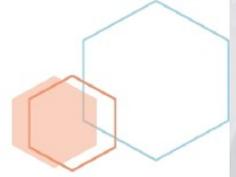
## DISTRIBUTION OF STUDENT LEARNING TIME

Course Content Outline	CLO*	Teaching and Learning Activities						SLT
		Guided Learning (F2F)				Guided Learning (NF2F) eg: e-Learning	Independent Learning (NF2F)	
		L	P	T	O			
1.0 INTRODUCTION								
1.1 Explain the overview of project management	CLO1	1	0	0	0	0	0.75	1.75
1.2 Explain the overview of construction management	CLO1	1	0	0	0	0	0.75	1.75
1.3 Apply the concept of project management in construction	CLO1	2	0	0	0	0	1.5	3.5
2.0 ORGANIZATIONAL STRUCTURES AND PROJECT LIFE CYCLE IN PROJECT MANAGEMENT								
2.1 Interpret organizational structures influence on project management	CLO1	2	0	0	0	0	1.5	3.5
2.2 Apply project life cycle in project management	CLO1	2	0	0	0	0	1.5	3.5
2.3 Explain the resources in the project management	CLO1	1	0	0	0	0	0.75	1.75
3.0 SITE SUPERVISION AND SAFETY MANAGEMENT IN CONSTRUCTION								
3.1 Interpret the concept of site supervision	CLO1	2	0	0	0	0	1.5	3.5
3.2 Apply safety management in construction	CLO1	2	0	0	0	0	1.5	3.5
4.0 PLANNING AND SCHEDULING								
4.1 Explain the technics of planning and scheduling	CLO1	2	0	0	0	0	1.5	3.5
4.2 Apply critical path method for planning and scheduling	CLO1	2	0	2	0	0	2	6
4.3 Apply S-curve in construction planning	CLO1	2	0	2	0	0	2	6
4.4 Manipulate common programming software for planning and scheduling	CLO2	2	0	4	0	0	2.5	8.5
4.5 Perform common programming software for planning and scheduling	CLO3	2	0	2.5	0	0	2.125	6.63
5.0 PROJECT CONTROL AND QUALITY MANAGEMENT								
5.1 Describe the concept of controlling	CLO1	1	0	0	0	0	0.75	1.75
5.2 Explain the quality control in project management	CLO1	2	0	0	0	0	1.5	3.5
5.3 Apply the concept quality assurance in project management	CLO1	1	0	0	0	0	0.75	1.75
5.3 Apply the concept of quality assurance in project management	CLO3	1	0	1	0	0	1	3

**TOTAL: 63.4**



## Notes of Guidance



FINAL ASSESSMENT	PERCENTAGE (%)	F2F	NF2F	SLT
Final Examination	50	2	4	6

TOTAL: 6

\*\*Please tick (✓) if this course is Latihan Industri/ Clinical Placement/ Practicum/ WBL using 2-weeks, 1 credit formula

L = Lecture, T = Tutorial, P= Practical, O= Others, F2F=Face to Face, NF2F=Non Face to Face

\*Indicate the CLO based on the CLO's numbering in Item 8.

GRAND TOTAL SLT: 81



### TEACHING METHODOLOGY

- Interactive lecture
- Question & Answer,
- Self-directed learning
- Discussion
- Demonstration (Video)
- Online Class





## **SUMMARY**

### **1.0 INTRODUCTION**

• This topic covers the basic knowledge of overview of project management and construction management. Also concept project management in various project.

### **2.0 ORG STRUCTURE AND PROJECT LIFE CYCLE IN PROJECT MANAGEMENT**

• This topic exposes the students to various forms of organizational structure in project management. The student will also be exposed to apply the life cycle and resources in project management, characteristic and phase of project lifecycle.

### **3.0 SITE SUPERVISION AND SAFETY MANAGEMENT IN CONSTRUCTION**

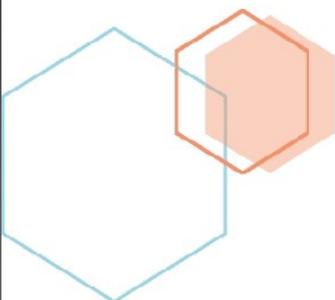
• This topic enables the students to integrate the concept of site supervision and the students will also can apply safety and environmental management in construction.

### **4.0 PLANNING AND SCHEDULLING**

• This topic equips the students with guidance the techniques of planning and scheduling, apply critical path method for planning and scheduling, apply S-Curve in construction planning. It also provides students the knowledge of manipulate common programming software for planning and scheduling.

### **5.0 PROJECT CONTROL AND MONITORING**

• The topic exposes the student to describe the concept controlling and concept of quality control in project management.





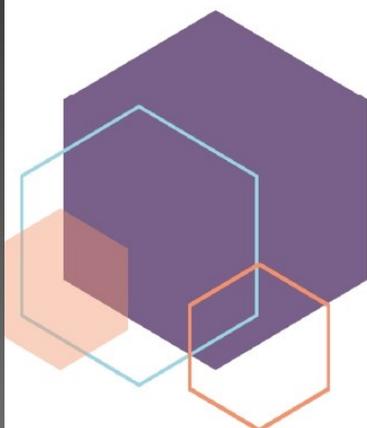
## ***WEEKLY SCHEDULE***

<b>WEEK</b>	<b>TOPICS</b>
<b>REG. WEEK</b>	REGISTRATION & PROJECT BRIEFING
<b>WEEK 1</b>	Chapter 1: Introduction
<b>WEEK 2</b>	Chapter 1: Introduction (cont.) Chapter 2: Project Life Cycle
<b>WEEK 3</b>	Chapter 2: Project Life Cycle
<b>WEEK 4</b>	Chapter 3: Site Supervision and Organization
<b>WEEK 5</b>	Chapter 3: Site Supervision and Organization (cont.) Chapter 4: Site Supervision and Organization
<b>WEEK 6</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 7</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 8</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 9</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 10</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 11</b>	Chapter 4: Site Supervision and Organization
<b>WEEK 12</b>	Chapter 4: Site Supervision and Organization Chapter 5: Project control and Monitoring
<b>WEEK 13</b>	Chapter 5: Project control and Monitoring
<b>WEEK 14</b>	Chapter 5: Project control and Monitoring



## ***GRADING ASSESSMENT***

No	Assessment	Number (minimum)	% Total	Week
1	Test 1 (CLO 1) (C3, PLO1)	2	15	WEEK 5 TOPIC 1-3
	Test 2 (C3, PLO1) (C3, PLO1)			WEEK 12 TOPIC 4-5
2	Quiz (CLO 1) (C3, PLO1)	1	5	WEEK 3 TOPIC 1/2
3	Assignment (CLO1) (C3, PLO1) (CLO3) (A2, PLO11)	1	10	WEEK 4 - 5 TOPIC 2/3/5 TOPIC 5
4	Mini Project (CLO2) (P3, PLO5) (CLO3) (A2, PLO11)	1	20	WEEK 11- 13 TOPIC 4 TOPIC 4
5	FINAL EXAM (CLO 1) (C3, PLO1)	1	50	TOPIK 1-5
<b>Overall Total</b>		<b>6</b>	<b>100</b>	





## ASSESSMENT MAPPING

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
				Quiz	Test	Mini Project	Assignment	Final Examination		
				(1) 5%	(2) 15%	(1) 20%	(1) 10%	(1) 50%		
CLO1 : Apply correctly the fundamental engineering concepts of project management	1	C3	Interactive Lecture	•					58	T1/T2
			Cooperative Learning		•		•			T1-T3,T4-T5
			Interactive Lecture				•			T2/T3/T5
CLO2 : Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities	5	P3	Cooperative Learning			•			11	T4
CLO3 : Perform efficient management of time and resources in civil engineering field.	11	A2	Cooperative Learning				•		13	T5
					•					T4
								<b>TOTAL SLT:</b>	<b>81</b>	

Remarks/ Notes:

DT : DOMAIN TAXONOMY

/ : OR

- : UNTIL

∴ AND



## REFERENCES

### Main reference supporting the course

Project Management Institute (2017). *A Guide to The Project Management Body of Knowledge 6<sup>th</sup> Edition*. Project Management Institute, Inc.

### Additional references supporting the course

- Abdul Hakim Mohammed, Mohd Saidin Misnan, & Mat Naim Abdullah. (2011). *Pengurusan Projek Pembinaan Edisi Pertama*. UTM Press.
- Ang Huat Bin. (2015). *Principles of Management*. Oxford Fajar Sdn Bhd.
- E Gould (2013). *Construction Project Management 4th Edition*. Prentice Hall. Richardson, G. L. (2014). *Project Management Theory and Practices*. Prentice Hall.
- Siu Lam Tang. (2003). *Modern Construction Project Management 2nd Edition*. HongKong: Hong Kong University.



# PROJECT BRIEF

## ECO KIOSK



## ECO KIOSK PROJECT

DCC40132  
PROJECT MANAGEMENT & PRACTICES

# DCC40132

## PROJECT MANAGEMENT & PRACTICES

### PROJECT BRIEF

<b>Task</b>	Mini Project
<b>Marks</b>	20%
<b>Course Learning Outcome</b>	<p>CLO2: Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities (P3, PLO5)</p> <p>CLO3: Perform efficient management of time and resources in civil engineering field (A2, PLO11)</p>
<b>Topic</b>	TOPIC 4: Planning and scheduling

#### THE BRIEF

“Eco Kiosk” project is an entrepreneurial infrastructure for students and is one of the attractions of its own sustainability as a building with the theme "Affordable and Able to Build". It contains 4 business spaces (kiosks) with a size of 10 feet x 10 feet x 10 feet (length x width x height) each. The overall size of the “Eco Kiosk” is 20 feet x 20 feet. It will be a place for students to carry out entrepreneurial activities that generate income as well as be a center / medium of current learning that can provide a large space for the development of research based on waste material.

The design of “Eco Kiosk” is incorporated with the latest principles of environmental and state of the art environmental technology. The construction of the Eco Kiosk was divided into two stages. First stage is for Main Structure and the second stages is for Architecture. The buildings will be applied Green Building Concept as recommended by Government of Malaysia and also to protect the Earth from harm.

#### COURSE TASK TIMELINE

- WEEK 1: Topic 1
- WEEK 2: Topic 1
- WEEK 3: Topic 3
- WEEK 4: Topic 3
- WEEK 5: Topic 4
- WEEK 6: Topic 4
- WEEK 7: Topic 4
- WEEK 8: Topic 4
- WEEK 9: Topic 4
- WEEK 10: Topic 4
- WEEK 11: Topic 4  
(Project task)
- WEEK 12: Topic 4
- WEEK 13: Topic 5  
(Submission project task)
- WEEK 14: Topic 5



## PROJECT BRIEF



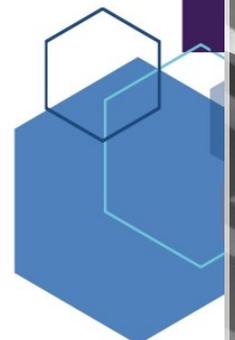
Base on the “Eco Kiosk Explode” figure 1 below, students are requested to:

- A)** Constructs a Project Planning by using Microsoft Project (MSP). Below is the detail of a project.  
**(CLO2, PLO5, P3) 10 marks**

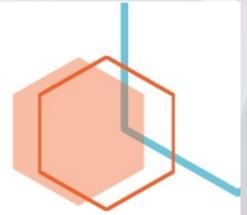
### **DETAIL OF PROJECT**

1. Project Information:
  - i. Project Title: Construction of single story “Eco Kiosk” at Polytechnic Port Dickson
  - ii. Project Start Date: **1.1.2021**
  - iii. Project Finish Date: **1.07.2021**
  - iv. Project Duration: 06 months
  - v. Calendar: Sunday – No working
  - vi. Public Holiday –Refer Public Holiday at Calendar 2021
2. Describe the WBS activities of Construction of single story “Eco Kiosk”
3. Please construct and planning the activities for all WBS level on your project activities such as:
  - a. Project Start
  - b. Preliminaries
  - c. Site Clearing
  - d. Structure work
    - i. Foundation works
    - ii. Stump
    - iii. G/round beam
    - iv. G/Floor slab
    - v. Column
    - vi. Roof beam
    - vii. Roofing
    - viii. Finishing work
  - e. Testing and commissioning

- B)** Based on your “Eco Kiosk” project planning, discusses the key planning process for scheduling and estimating in term of scope management, cost management and time management.  
**(CLO3, PLO11, A2) – 10 marks**



## PROJECT BRIEF



### SUBMISSION REQUIREMENTS

This is an individual project. Please submit this mini project, 2 weeks after this task was given together with the provided rubric.

1. Produce the report which should include all information above.
2. Table of content and page numbering
3. A compile report must be submitted upon completing the course. Report must be submitted in MS word format including the Microsoft Project software (MSP) report.
4. Font: Arial, 11 pt., Title Bold  
Line and paragraph: Justify, 1.15 spacing  
Labelled diagrams and figure
5. References are included
6. MSP full template task work must submit in CIDOS platform or other platform such as google drive, email, google classroom etc.
7. The assessment of this project will be based on affective domain and psychomotor domain. Brief criteria of the assessment are referring to rubrics PLO5 and PLO11.

### IMPORTANT DATES

WEEK	ACTIVITY					
Week 5 – Week 12	<b>TOPIC 4: Planning and Scheduling</b> <table border="1"><tr><td>4.1 Explain the technics of planning and scheduling</td></tr><tr><td>4.2 Apply critical path method for planning and scheduling</td></tr><tr><td>4.3 Apply S-curve in construction planning</td></tr><tr><td>4.4 Manipulate common programming software for planning and scheduling</td></tr><tr><td>4.5 Perform common programmingsoftware for planning and scheduling</td></tr></table> (Theory and practical hands-on Microsoft Project)	4.1 Explain the technics of planning and scheduling	4.2 Apply critical path method for planning and scheduling	4.3 Apply S-curve in construction planning	4.4 Manipulate common programming software for planning and scheduling	4.5 Perform common programmingsoftware for planning and scheduling
4.1 Explain the technics of planning and scheduling						
4.2 Apply critical path method for planning and scheduling						
4.3 Apply S-curve in construction planning						
4.4 Manipulate common programming software for planning and scheduling						
4.5 Perform common programmingsoftware for planning and scheduling						
Week 11	MINI PROJECT					
Week 13	Report Writing and submission					

## PROJECT BRIEF



### 4. To complete your project planning, please consider these items:

- a. Builds all project tasks and subtask in Microsoft Project
- b. Set the project information
- c. Plan the duration for each sub task
- d. Link all task
- e. Auto schedule all tasks
- f. Show WBS number
- g. Highlight the critical task
- h. Resources involved
- i. Cost
- j. Work progress
- k. Save the project.

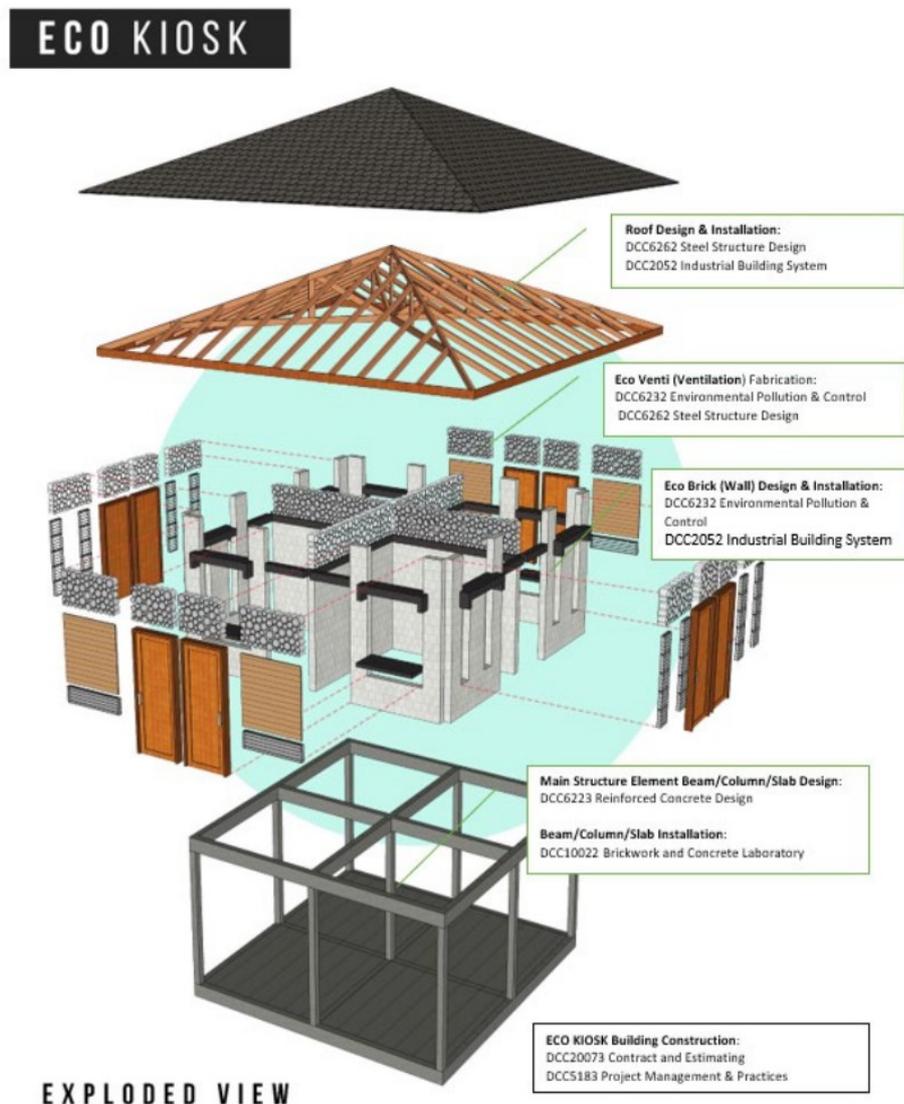


Figure 1: Drawing “Eco Kiosk” Exploded view

# RUBRIC

## ECO KIOSK



# ECO KIOSK PROJECT

- DCC2052 — INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM
- DCC6232 — ENVIRONMENTAL POLLUTION & CONTROL
- DCC40132 — PROJECT MANAGEMENT & PRACTICES

CLO2		Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities										
PLO5		Modern Tool Usage: Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations; (DK6)										
CLO	PLO	LEVEL	DP/NA	CRITERIA	RUBRIC SCALES					Weightage	MARKS	FULL MARKS
					EXCELLENT 5	GOOD 4	FAIR 3	WEAK 2	VERY WEAK 1			
CLO2	5	P3	DP1	Depth of knowledge	Ability to demonstrate knowledge on Microsoft project					x1		
					Demonstrates well developed and thorough understanding of Microsoft Project	Demonstrates good understanding of Microsoft Project	Demonstrates adequate understanding of Microsoft Project	Demonstrates limited understanding of Microsoft Project	Demonstrates poor understanding of Microsoft Project			
			DP3	Work procedure for using Microsoft Project	Perform work procedure for Project Planning by using Microsoft project					x1		/20
			DP4	Competency in perform Microsoft Project for project planning	Ability to perform Microsoft Project for project planning					x2		
TOTAL												/100%

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC40132**

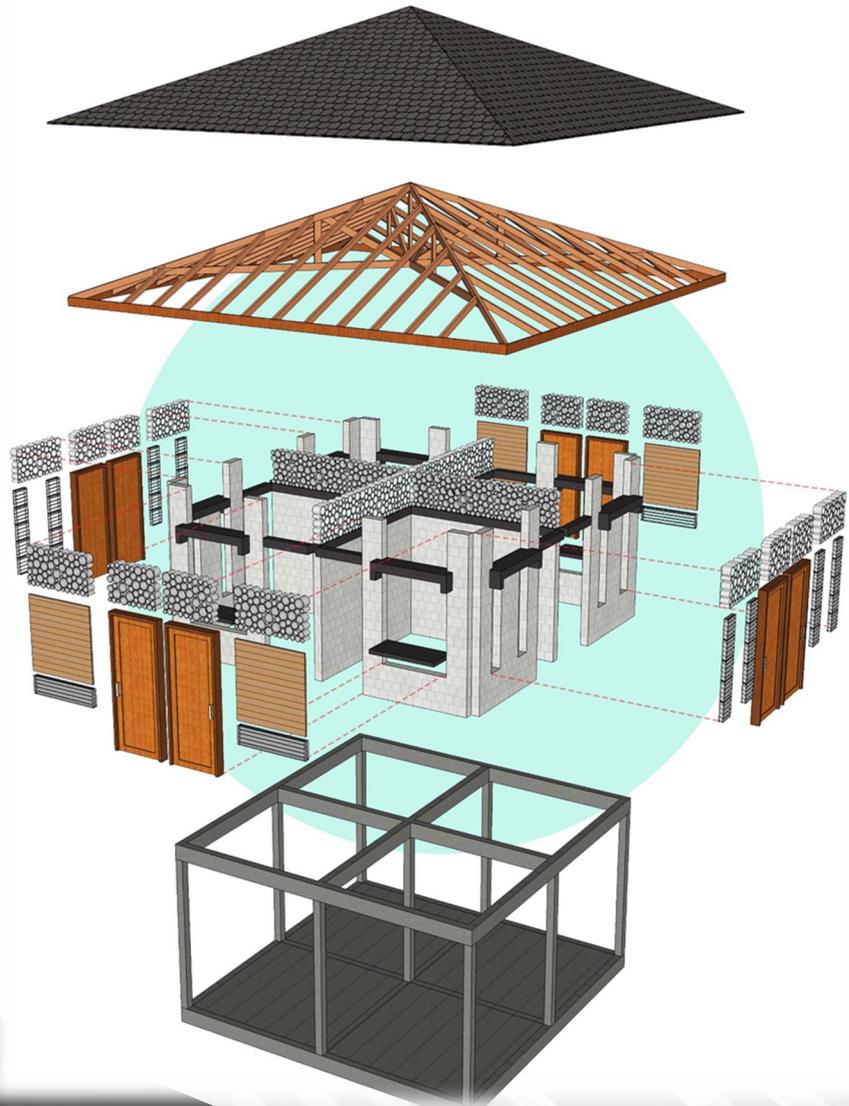
CLO3		Perform efficient management of time and resources in civil engineering field										
PLO11		Project Management and Finance : Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments										
CLO	PLO	LEVEL	DP/NA	CRITERIA	RUBRIC SCALES					Weightage	MARKS	FULL MARKS
					EXCELLENT 5	GOOD 4	FAIR 3	WEAK 2	VERY WEAK 1			
CLO3	11	A2		Usage of Microsoft Project	Ability to perform project planning by using Microsoft Project					x2		
					Complete the planning project bay using Microsoft project correctly and independent	Complete the planning project bay using Microsoft project correctly with 10 % guidance	Complete the planning project bay using Microsoft project correctly with 20% guidance	Complete the planning project bay using Microsoft project correctly with 30% guidance	Cannot complete the planning project bay using Microsoft project correctly with 50% guidance			
				Time management	Ability to shows the efficient management of time					x1		/20
				Resources	Ability to use resources in in project planning					x1		
TOTAL												/100%

**DEPARTMENT OF CIVIL ENGINEERING**

**RUBRIC DCC40132**

# IMPACT

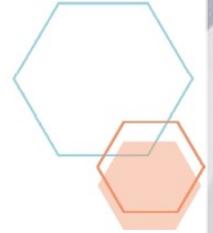
## ECO KIOSK



## ECO KIOSK PROJECT

- DCC2052 — INTRODUCTION TO INDUSTRIALISED BUILDING SYSTEM
- DCC6232 — ENVIRONMENTAL POLLUTION & CONTROL
- DCC40132 — PROJECT MANAGEMENT & PRACTICES

## IMPACT DCC2052 – INDUSTRIALISED BUILDING SYSTEM



1. Provide project score evaluation of 40% for course DCC 6232 "Environmental Pollution & Control" for CLO2 (A4, PLO10) (C5, PO8) AND CLO3 (C4, PLO3) (A3, PO7) and 20% for course DCC 2052 "Introduction to IBS" for the assessment of CLO2 (P4, PLO5) (P4, PO5) AND CLO3 (A2, PLO7) (P3, PO6).
2. Fulfil the smart goal in BT5 POLYGREEN - Waste management which is to implement programs and training awareness of waste management systematically at the polytechnic
3. Provide direct and practical exposure to students and lecturers at Port Dickson Polytechnic related to aspects of sustainability and environmental protection.
4. Provide opportunities for students to approach and interact with each other and share their views related to the utilization of waste materials to the production of green products in the construction industry that are very relevant to the field of civil engineering.
5. Trigger a high order thinking skill (High Order Thinking Skill) in conducting programs that have been arranged.
6. Foster unity between different cultures and build a global network of friendship.
7. The organization of this program triggered for more similar programs / activities involving educational institutions in Malaysia and institutions from abroad.



## IMPACT DCC6232 – ENVIRONMENTAL POLLUTION & CONTROL

1. Provide evaluation of project mini marks of 40% for course DCC6232 "Environmental Pollution & Control" for CLO2 (A4, PLO10) (C5, PO8) and CLO3 (C4, PLO3) (A3, PO7)
2. Provide direct and practical exposure to students and lecturers at Port Dickson Polytechnic related to aspects of sustainability and environmental protection.
3. Provide opportunities for students to approach and interact with each other and share their views related to the utilization of waste materials to the production of green products in the construction industry that are very relevant to the field of civil engineering.
4. Trigger a high order thinking skill (High Order Thinking Skill) in conducting programs that have been arranged.
5. Produce bricks that are cost -effective, cheap, and very readily available.
6. Expanding green technology practices in Port Dickson Polytechnic and the community while raising awareness on the importance of recycling in daily life. waste becomes a valuable product '.
7. In addition, this study has opened the minds of our researchers to continue to do research and development to improve professionalism and competence as polytechnic lecturers.
8. Be a reference to students appropriate to their level of learning. This study is an application of some of the theories taught during Environmental Pollution and Control in the topic of solid waste management.





## IMPACT DCC40132 – PROJECT MANAGEMENT AND PRACTISES

1. Student able to correctly apply the fundamental engineering concepts of project management
2. Student able to manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering.
3. Student able to perform efficient management of time and resources in civil engineering field.
4. Student able to demonstrate knowledge and understanding of engineering management principles and apply these to a real project.



# ECO BRICK PROJECT OUTCOMES



# ECO VENTI PROJECT OUTCOMES



# REFERENCES

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- Ibrahim R.dan Ismail (1999), **Modular Coordination**, A Design Guide Towards Open Building System in Malaysia, Kuala Lumpur, Construction Industry Development Board (CIDB).
- **Guide to Modular Coordination in Buildings Part 1**: General Principles, MS 1064 (2001), Kuala Lumpur, Department of Standard Malaysia.
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- Kiely, G. (1996). **Environmental Engineering**. McGraw Hill Veslind, P.A., Peirce, J.J., &Weiner. (Terjemahan Nooraini Jaafar), (1994) Kejuruteraan Alam Sekitar.Universiti Teknologi Malaysia.
- Environment Quality Act, 1974 (Act 127) **Legislation and Order**. International Law Book Services

## Main reference supporting the course

Project Management Institute (2017). A Guide to The Project Management Body of Knowledge 6<sup>th</sup>Edition. Project Management Institute, Inc.

## Additional references supporting the course

- Abdul Hakim Mohammed, Mohd Saidin Misnan, & Mat Naim Abdullah. (2011). Pengurusan Projek Pembinaan Edisi Pertama. UTM Press.
- Ang Huat Bin. (2015). Principles of Management. Oxford Fajar Sdn Bhd.
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