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# **VEB4233**

## **Coastal Planning and Management**



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**Marine Coastal and Delta Sustainability for  
Southeast Asia (MARE)**



- Contains “Coastal Planning and Management” course materials (for BEng. Civil Engineering)
- Site URL: <https://ulearn.utp.edu.my/course/view.php?id=10980> (Available in English).
- Modules:
  - Announcements
  - Overview
  - Course Syllabus
  - Teaching Methodology
  - Course Materials
  - Lecture Notes
  - Additional Resources
  - Test & Project
  - Statistics



## VEB4233:Coastal Planning and Management - January 2022

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### MARE Disclaimer

These lecture materials are for the Marine Coastal and Delta Sustainability for Southeast Asia (MARE) (Project No. 610327-EPP-1-2019-1-DE-EPPKA2-CBHE-JP).

*This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be made responsible for any use which may be made from the information contained herein.*



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This lecture notes contain topics of the impacts of oil and gas activities on the marine environment, awareness on the effects of hydrocarbon exploration, and an overview of the rules and regulations in marine pollution management.

# Course Syllabus



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## VEB4233 COASTAL PLANNING AND MANAGEMENT JANUARY 2022

**Course Instructor:** Ts. Dr. Teh Hee Min (Room 13.03.22; Ext: 7302)

### Course Synopsis:

This course aims at providing a framework of knowledge required for the proper planning and management of coastal zone in respecting the principles of sustainability. The course covers the factors leading to coastal erosion, marine pollution, coastal reclamation, planning concept in coastal zones, coastal protection and stabilization measures, and shoreline management.

### Course Learning Outcomes:

Course Learning Outcome		Programme Outcomes (POs)	
		PO2: Identify, formulate, conduct research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.	PO3: Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
CO1	Assess the influencing environmental factors and related coastal processes, and analyze causes of coastal erosion/sedimentation	X	
CO2	Develop skills and knowledge for the planning and management of coastal zone in respecting the principles of sustainability.	X	
CO3	Evaluate application of different coastal stabilization schemes and the governing factors for their selection and impacts		X

**Lecture Time and Place:** Monday 16:00 – 18:00 18-00-03/04  
Friday 15:00 – 17:00 22-04-14

**Assessments:**

Quizzes	-	10%
Project	-	20%
Tests	-	30%
Final Examination	-	50%

### Text Books

Kamphuis, J. W. (2000). "Introduction to Coastal Engineering and Management", World Scientific.

## VEB4233 COASTAL PLANNING AND MANAGEMENT JANUARY 2022

### Course Planning

LECTURE	TOPIC AREA	TOPIC	OUTCOMES		ASSESSMENT TOOL
Week 1	Introduction to CPM	<ul style="list-style-type: none"> <li>Coastal nomenclature</li> <li>Introduction to coastal hydrodynamic and transport processes</li> </ul>	CO1	PO2	
Week 2	Coastal Classification and Causes of Coastal Erosion	<ul style="list-style-type: none"> <li>Classification of coastal features and shoreline response</li> <li>Impacts of meteorological and natural processes to coastal morphology</li> </ul>	CO1	PO2	Quiz 1 Test 1 Final Exam
Week 3		<ul style="list-style-type: none"> <li>Impacts of development to coastal processes</li> </ul>			
Week 4	Planning Concept in the Coastal Zone	<ul style="list-style-type: none"> <li>Implementation of sustainable development</li> <li>Integrated coastal zone management</li> </ul>	CO2	PO2	Quiz 2 Test 1 (Wk 6) Final Exam
Week 5		<ul style="list-style-type: none"> <li>Shoreline management plan</li> </ul>			
Week 6		<ul style="list-style-type: none"> <li>Guidelines for development in coastal areas</li> </ul>			
Week 7	Coastal/Shore Protection and Coastal Stabilization	<ul style="list-style-type: none"> <li>Overview of types of coastal stabilization scheme</li> <li>Applications and impacts</li> </ul>	CO3	PO3	Test 2 Final Exam
Week 8		<ul style="list-style-type: none"> <li>Management solutions</li> <li>Basic cost components and environmental concerns in the design and implementation of the protection scheme</li> <li>Dredging and land reclamation</li> <li>Marine pollution and control</li> </ul>			
Week 9	Hydraulic Study For Shoreline Management	<ul style="list-style-type: none"> <li>Guidelines and requirements</li> <li>Field investigations and surveys</li> </ul>	CO3	PO3	Quiz 3 Test 2 (Wk 11) Final Exam
Week 10		<ul style="list-style-type: none"> <li>Impact assessment and monitoring</li> <li>Numerical models as support for shoreline management</li> </ul>			
Week 11	Case Simulation	<ul style="list-style-type: none"> <li>Simulation session – Case study</li> </ul>	CO1 CO2 CO3	PO2 PO3	Final Exam
Week 12					





## VEB4233:Coastal Planning and Management - January 2022



Home > My courses > VEB4233:Coastal Planning and Management - January 2022

Turn editing off

+  Announcements 

Edit   
Edit 

+ Add an activity or resource

### + Course Details

Edit 

+  Course Outline 

Edit  



+  MARE Disclaimer 

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+ Add an activity or resource

### + Week 1

Edit 

+  Lecture Note 1: Overview 

Edit  

+  Lecture 1 (3 Jan 2022) 

Edit  

# Course Materials



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**Week 5**  Edit 

 Lecture Note 6: Hydraulic Study for Shoreline Management  Edit  

 Add an activity or resource

**Week 6**  Edit 

 Lecture 8 (7 Feb 2022)  Edit  

 Lecture 9 (9 Feb 2022)  Edit  

 Add an activity or resource

**Week 7**  Edit 

 Lecture Note 7: Coastal Planning  Edit  

 Lecture 10 (14 Feb 2022)  Edit  

 Add an activity or resource



# Lecture Notes



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## Overview



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## Meteo-marine Parameters & the Field Measurement

### Bathymetry and Topography Surveys



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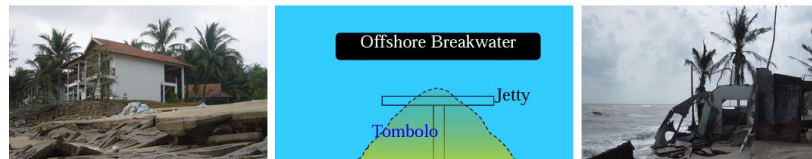
## Coastal Classification, Hydrodynamics & Erosion



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## Coastal Structure Applications & Impacts



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## Hydraulic Study for Shoreline Management



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## Coastal Planning





# Additional Resource



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**LIVE**

## WEBINAR PEMULIHAN PANTAI PULAU PANGKOR

DAFTAR DI SINI!



PAUTAN ZOOM AKAN  
DIKONGSIKAN  
KEPADA PENDUDUK  
PULAU PANGKOR YANG  
TELAH MENDAFTAR.

**HADIAH MISTERI MENANTI KEPADA 90  
PENDUDUK PULAU PANGKOR TERAWALI!**  
PENDAFTARAN ADALAH PERCUMA!

"JAGA PANTAI, JAGA MASA HADAPAN"



**MOHAMAD ISMAIL BIN  
IBRAHIM**  
Pen. Pengawai Tadbir Kanan,  
Jabatan Pembangunan  
Komuniti dan Sosial (MPM)



**MOHAMMAD RODZHI BIN  
ABDULLAH**  
Jurutera Daerah, Jabatan  
Pengairan dan Saliran Negeri  
Perak (JPS)



**MD NAZERI BIN MOHD  
SIDEK**  
Global Environment Centre  
(GEC)



**DR TEH HEE MIN**  
Jabatan Kejuteraan Awam dan Alam  
Sekitar, Universiti Teknologi PETRONAS  
(UTP)



**TAN WEE HOE**  
Founder of Hello Pangkor  
(NGO)



**SARAH HANNI**  
Moderator

**TARIKH: 26 JANUARI 2022** **MASA: 3 - 5 PETANG**

**PLATFORM: ZOOM**

Dianjurkan oleh:



Kolaborasi Bersama:



## ADJUNCT PROFESSORIAL TALK

### IMPACTS OF CLIMATE CHANGE ON COASTAL DEVELOPMENT



- Date: 24<sup>th</sup> March 2022 (Thursday)
- Time: 10:00 am – 12:00 noon



**Dato' Ir. Dr. Nik Mohd Kamel  
Nik Hassan**

**Founder & Managing Director of  
Dr Nik and Associates Sdn. Bhd.**

Ir. Dr. Nik Mohd Kamel Nik Hassan is the founder and Managing Director of Dr Nik & Associates Sdn. Bhd., an engineering and project management consultancy firm. Dato' Dr. Nik obtained B.Sc. and M.Sc. in Civil Engineering from University of Southampton and a Ph.D. in Hydraulics Engineering from University of Manchester. Dato' Dr. Nik is also a Professional Member of the Board of Engineers Malaysia, member of the International Association of Hydraulics Research (MIAHR), International Water Resources Association (MIWRA), MIEM, and MWA. Dato' Dr. Nik has also been appointed as an Academic Panel for several local universities. He was appointed Adjunct Professor at UKM from 2019 - 2021. Now he is adjunct professor at UTM and UTP.



Scan to join





# Additional Resource



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## ADJUNCT LECTURE

### Reclamation of a sand island for Seri Tanjung Pinang 2: A case study and a virtual site visit

**Ir. Ts. Nik Abdullah Muaz Nik Mohd Kamel**  
Director, Dr. Nik & Associates Sdn. Bhd.



Nik Abdullah Muaz graduated in Civil Engineering from the University of Wollongong, Australia in 2003. He also received his M.Eng. degree in Coastal Engineering and Port Development from the UNESCO-IHE, Netherlands in 2005, and M.Sc. degree in Hydraulic (Coastal) Engineering from the Technology University Delft, Netherlands in 2007. Currently, he is responsible for detailed engineering design work on coastal structures, modelling works, preparing technical and financial proposal, and liaison with the client. Nik Abdullah Muaz has involved in various coastal design works and coastal study. The design includes conceptual design for ports, breakwaters, coastal protection works, revetments, land reclamation works and numerical modelling for hydrodynamic, waves forecasting and hindcasting, and sediment transport.

**All are INVITED**

- Date: 7 March 2022 (Monday)
- Time: 16.00 AM -18.00 PM
- Microsoft Teams Link: <http://tiny.cc/0h7puz>

Organised by:  
Department of Civil and Environmental Engineering) & Centre for Academic Excellence (CADEX)



## ADJUNCT LECTURE

### Coastal Erosion Management in Malaysia

**Ir. Iwan Tan Sofian Tan**

Head, Coastal Engineering Modelling Department  
DR. NIK & ASSOCIATES SDN. BHD.



Coastal erosion is a national rather than a local problem in Malaysia. Addressing coastal erosion is a public policy concern in Malaysia because coastline retreat inevitably results in economic losses of varying magnitude. Disruption of sediment supply and transport processes is often contributed by human interventions. An erosion protection measure needs to be technically feasible, economically viable as well as environmentally and socially acceptable. The management of our coastline requires a holistic and sustainable planning for the long term. The dynamic coastal processes and their interactions with human, social, economic and ecological systems must be considered together with the effect of climate change

**All are INVITED**

- Date: 21<sup>st</sup> February, (Monday)
- Time: 16:00-18:00
- Microsoft Teams Link: <http://tiny.cc/9fnouz>

Organised by:  
Department of Civil and Environmental Engineering & Centre for Academic Excellence (CADEX)



# Test & Project



## Test

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Tests

Test 1

Available from 16 February 2022, 10:00 AM

INSTRUCTIONS TO CANDIDATES (NON-MCQ)

1. This **ONLINE TEST** contains **THREE (3)** Questions **ONLY**.

2. Answer **ALL** questions in **ONE (1) HOUR AND THIRTY (30) MINUTES**

3. Only **SINGLE** attempt for this test is **ALLOWED**

4. Where applicable, show clearly steps taken in arriving at the solutions and indicate **ALL** assumptions, if any.

Declaration Statements

Before I click the button to start Online Test, I hereby agree to the following conditions :  

I understand that Plagiarism (copying / cheating) is not permitted, and if caught and found guilty,

I will receive an F grade for this Online Test, and will be subjected to the Academic Disciplinary Committee.

I hereby certify that all answers submitted for this Online Test is my own original work.

Legal Disclaimer Notification: "Students are reminded that any file or attachment shared with you by your course lecturer is SOLELY for educational purposes and/or your personal and private study ONLY, and therefore cannot be shared with or disseminated to anyone else or uploaded on any website without the permission or authorization of the copyright owner"

Test 2

Available from 26 March 2022, 11:00 AM

INSTRUCTIONS TO CANDIDATES (MCQ)

1. This **ONLINE TEST** contains **FORTY (40)** Multiple Choice Questions (MCQ) ONLY.

2. Answer **ALL** questions in **ONE (1) HOUR**

3. Only **SINGLE** attempt for this test is **ALLOWED**

4. **EACH** question needs to be **ANSWERED** before proceeding to the **NEXT** one. Going back to the previous question is **NOT ALLOWED**

Declaration Statements

Before I click the button to start Online Test, I hereby agree to the following conditions :

## Project

Integrated Project

Instruction on Project Submission

COASTAL PLANNING AND MANAGEMENT

VP

Vasukey Palany Kumar

To

Adriana Yamin Ariffin; Amir Faiz Ahmad Nurulazam; Ashweini A/I Kupusamy; Zhen Chean Goh; Jivendra Vadiveloo; Joshua Choo; Jun Yann Lee; Lim Yue Sheng; Mohammad Shakir Mansor; Muhammad Eizam Bin Norzaman; Muhammad Nashrun Naim Abdul Manaf; Muhamad Syahmi Syaqr Bin Mohd Hasbullah; 11 others

Cc

Teh Hee Min - Dr (ACAD/UTP)

Wed 23/3/2022 8:53 AM

Dear Students,

I have created a folder name Integrated Coastal Management at One drive. Kindly park for final presentation after amendment.

Hope you can deliver the best for us.

Thank you.

Ir. Vasukey

Deputy Director

JPS Negeri Perak

DISCLAIMER : This e-mail and any files transmitted with it ("Message") is intended only for the use of the recipient(s) named above and may contain confidential information. You are hereby notified that the taking of any action in reliance upon, or any review, retransmission, dissemination, distribution, printing or copying of this Message or any part thereof by anyone other than the intended recipient(s) is strictly prohibited. If you have received this Message in error, you should delete this Message immediately and advise the sender by return e-mail. Opinions, conclusions and other information in this Message that do not relate to the official business of Universiti Teknologi PETRONAS (UTP) shall be understood as neither given nor endorsed by Universiti Teknologi PETRONAS (UTP).

Add an activity or resource

# Integrated Project



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## VEB4233 COASTAL PLANNING AND MANAGEMENT JANUARY 2022 SEMESTER

### INTEGRATED PROJECT

*NOTE: This integrated project is funded by UTP SOTL grant and EU Erasmus+ MARE Program and is in collaboration with Department of Irrigation and Drainage, Perak State.*

The Manjung District is a district in the southwestern part of the state of Perak, Malaysia. The district is well known for its Pangkor Island, a major attraction in Perak and the home of the Royal Malaysian Navy (TLDM) Lumut Naval Base and dockyard. Manjung has approximately 50 km of shoreline, which has been subdivided into seven Management Units (MU) as shown in Figure 1. The seven Management Units are MU9, MU10, MU11, MU12, MU13, MU14 and MU15. The extents of the respective MUs are given in Table 1.

Your company has been appointed by Department of Irrigation and Drainage (DID) Negeri Perak to develop integrated Coastal Vulnerability Index (CVI) for the designated MU. The task deliverables should cover the following components:

1. Evaluate the health of the coasts within the designated MU. [CLO1]  
[20 marks]
2. Identify the coastal stabilization structures/schemes adopted along the coast within the designated MU. [CLO2]  
[20 marks]
3. Develop the integrated Coastal Vulnerability Index (CVI) covering physical, socio-economy and biodiversity aspects for the designated MU. [CLO3]  
[30 marks]

Some of the required data are provided by DID, and the other information can be sourced from public domains, e.g., websites, reports, journal papers, newspaper articles, etc. All extracted information must be properly cited in the report and the sources must be included in the reference list.

Your company is required to present the findings to the DID on the **18<sup>th</sup> of March 2022 (Monday)**, 4pm via MS Teams. The final report should be submitted to the Client - [vasukey@water.gov.my](mailto:vasukey@water.gov.my) (copied to [heemin.teh@utp.edu.my](mailto:heemin.teh@utp.edu.my)) by **21<sup>st</sup> of March 2022**.



(a) Management Units within Perak



(b) Management Units within Manjung District

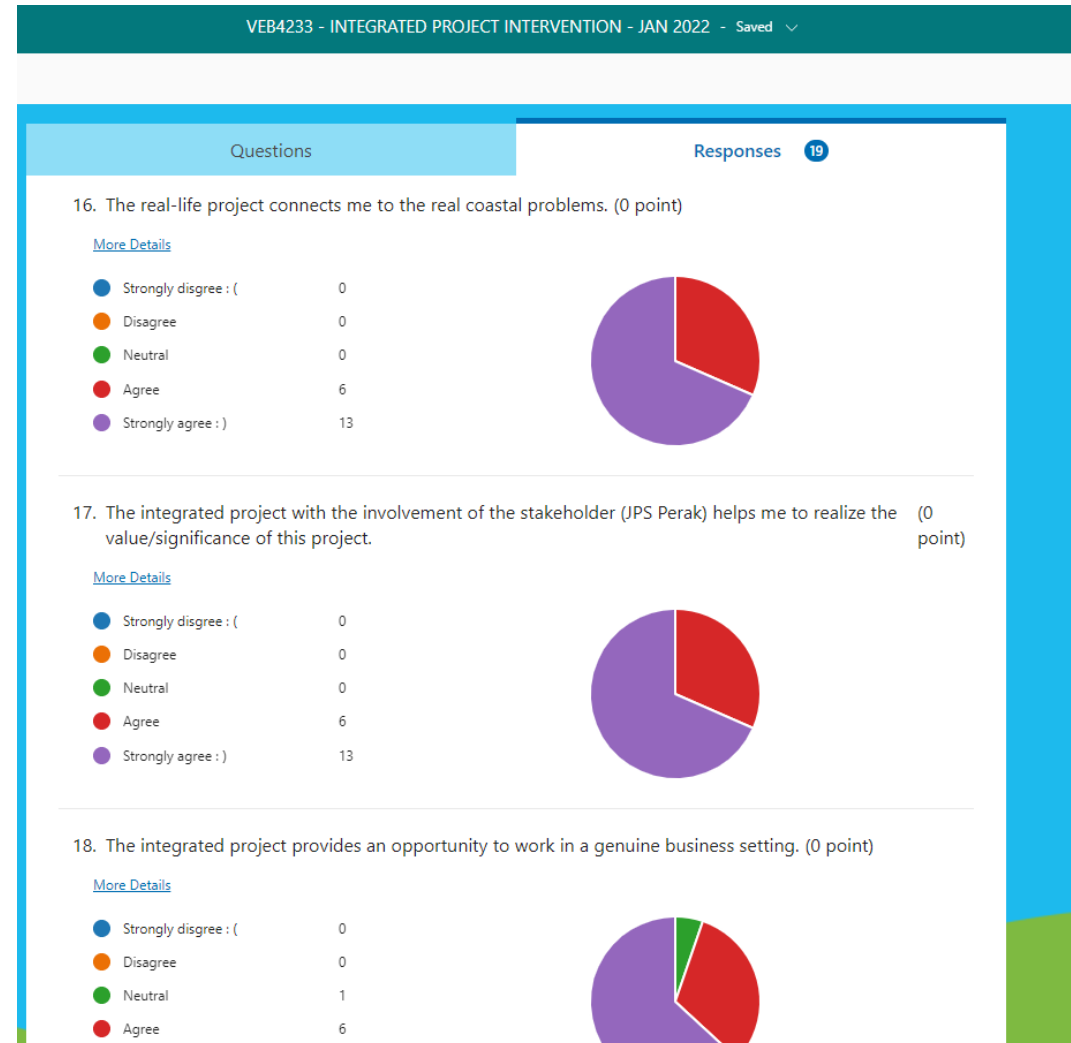
Figure 1: Management Units

Table 1: Extent of Management Units

MU ID	Northward Extent	Southward Extent
MU9	Kuala Jarum Mas (S)	Pulau Talang
MU10	Pulau Talang	Tg. Hantu Lighthouse
MU11	Tg. Hantu Lighthouse	Sungai Manjung (N)
MU12	Sungai Manjung (S)	Chalet Kayu Pak Man
MU13	Chalet Kayu Pak Man	Stesen Janakuasa Sultan Azlan Shah
MU14	Stesen Janakuasa Sultan Azlan Shah	Pusat Riadah Laut Tanjung Kepah
MU15	Pusat Riadah Laut Tanjung Kepah	Sungai Perak (N)



## Questionnaires



## Questionnaires Results

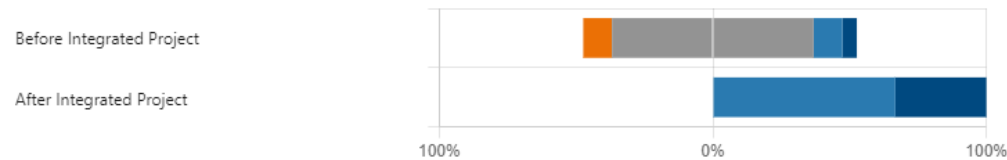
11. CLO1 - Assess the influencing environmental factors and related coastal processes, and analyze causes of coastal erosion/sedimentation

(0 point)

Rate your understanding of the CLO before and after the integrated project.

[More Details](#)

Very Low (<20%) Low (20 - 39%) Moderate (40-59%) High (60 - 79%) Very High (80 - 100%)



12. CLO2 - Develop skills and knowledge for the planning and management of coastal zone in respecting the principles of sustainability.

(0 point)

Rate your understanding of the CLO before and after the integrated project.

[More Details](#)

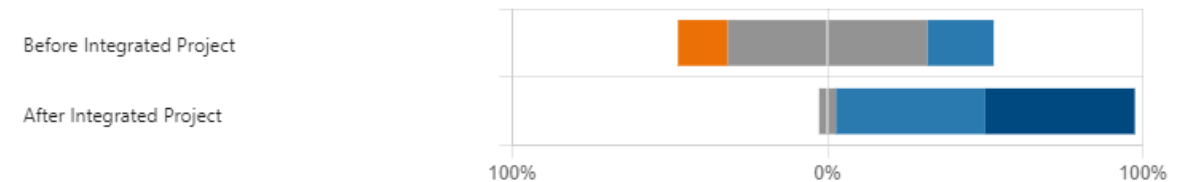
Very Low (<20%) Low (20 - 39%) Moderate (40-59%) High (60 - 79%) Very High (80 - 100%)



13. CLO3 - Evaluate application of different coastal stabilization schemes and the governing factors for their selection and impacts  
Rate your understanding of the CLO before and after the integrated project.

[More Details](#)

Very Low (<20%) Low (20 - 39%) Moderate (40-59%) High (60 - 79%) Very High (80 - 100%)



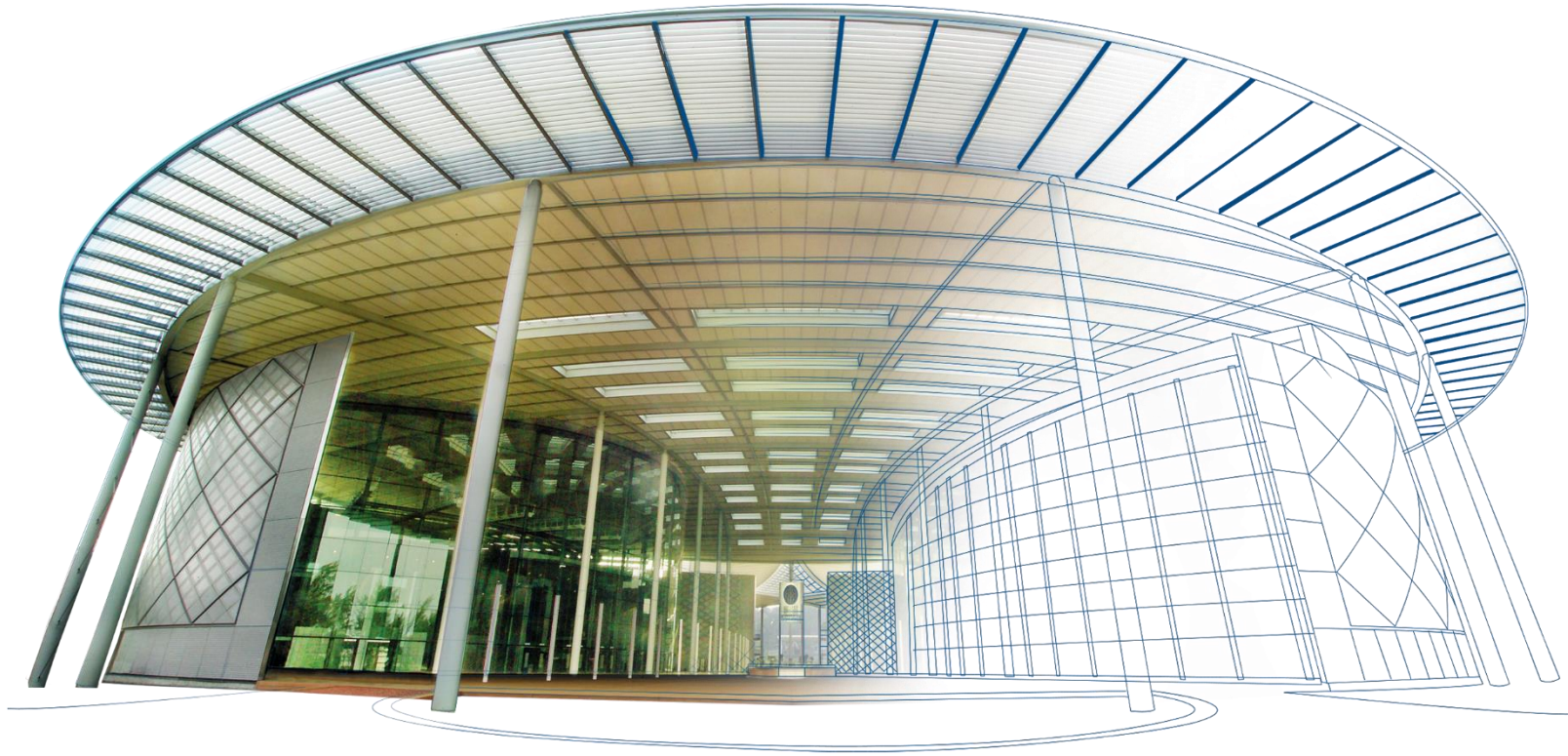
14. Overall, how do you rate your experience in this integrated project? (0 point)

[More Details](#)

Very poor	0
Poor	0
Fair	1
Good	5
Excellent	13







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