

**Learning platform for
problem-based capstone projects
to facilitate assessment
of learning outcome by students**

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CSE



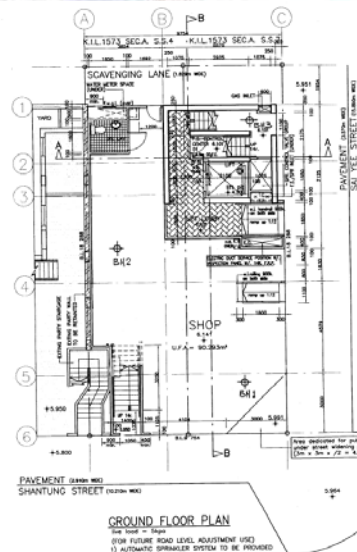
**This OBA Project is instigated by
and as enhancement to an existing
problem-based project**

Problem-based Project

- **Design project**
 - final-year core subject in our Civil Engineering Degree Programme
 - facilitates students to solve complex real-life projects
 - problem-based subject
 - continuous assessment
- **Learning approach:-**
 - Not conducted through conventional lectures/tutorials
 - Substantially reliance on effective learning of the students
 - Strong emphasis on self-learning and continuous progress

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- Plans and design data were given to students
- Students worked in groups of 5 assigned by us
- **Scope of work**
 - Prepare **two** super-structure schemes with relevant building elements with discussion on their advantages and disadvantages
 - Prepare **one** in-depth presentation on the selected scheme from above



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To monitor the progress of works:

Program

Time sheet

13 Aug 2007

CSE#14 Design Project
(Version 2007-2008)

Week no	Date	Year	Activities	Timespan
1	3-9-2007 (Monday)	07/034	Introduction & Briefing (to be attended by all)	18.30-21.30
2	16-8-2007 (Monday)	07/034	Progress Report & Consultation (to be attended by all)	18.30-21.30
3	17-8-2007 (Monday)	07/034	Progress Report & Consultation (to be attended by all)	18.30-21.30
4	24-8-2007 (Monday)	TU412 TU707	Discussion (internal supervisors only)	10.30-13.30
5	1-10-2007 (Monday)	-	Holiday	-
6	8-10-2007 (Monday)	Y511	Presentation on Schematic Design (details to be confirmed)	9.00-14.00
7	8-10-2007 (Monday)	TU412 TU707	Discussion (internal supervisors only)	10.30-13.30
8	15-10-2007 (Monday)	07/034	Feedback, Progress & Consultation (to be attended by all)	18.30-21.30
9	22-10-2007 (Monday)	TU412 TU707	Discussion (internal supervisors only)	10.30-13.30
10	29-10-2007 (Monday)	07/034	Progress Report & Consultation (to be attended by all)	18.30-21.30
11	5-11-2007 (Monday)	TU412 TU707	Discussion (internal supervisors only)	10.30-13.30
12	12-11-2007 (Monday)	07/034	Progress Report & Consultation (to be attended by all)	18.30-21.30
13	19-11-2007 (Monday)	TU412 TU707	Discussion (internal supervisors only)	10.30-13.30
14	26-11-2007 (Monday)	Y511	Presentation on Final Design (details to be confirmed)	9.00-13.00
15	3-12-2007 (Monday)	Y511	Presentation on Final Design (details to be confirmed)	9.00-13.00

Notes:
1. External supervisors: Dr Arnold K.L. Chan & Dr W.C. Chan, Buildings Department
2. Internal supervisors: Dr Y.M. Cheng & Dr D. Eddie S.S. Lam, CSE, PolyU

TIMESHEET

INITIAL SURNAME Student Number

Week Ending Date (DDMMYY)	Hours in Week	Mark (1st/2nd/3rd/4th/5th/6th)

Job Task*

Standard hours each day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A	0.00																									
B	0.00																									
C	0.00																									
D	0.00																									
E	0.00																									
F	0.00																									
G	0.00																									
H	0.00																									
I	0.00																									
J	0.00																									
K	0.00																									
L	0.00																									
M	0.00																									
N	0.00																									
O	0.00																									
Total Standard Hours	0.00																									

Task A: Supervision I
Task B: Supervision II
Task C: Supervision III
Task D: Site Visit & ELS
Task E: Foundation
Task F: Concrete and Construction Planning I
Task G: Concrete and Construction Planning II

Checked by: _____
(Name)
(Group Leader)

Mark by:
C.M. CHENG
Edwin S.L. LAU
W.C. CHAN
K.L. CHAN

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Specific objectives to achieve (e.g. deliverables)

- Schemes Reports:-
 - highlight the potential risk
 - favorable/unfavorable conditions
 - site constraints
 - construction difficulties
 - likely long-term maintenance requirements
- Provide relevant information via:-
 - drawings
 - photos
 - equipments
 - documents
 - supportive detailed structural calculations

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Reading materials: Government documents, examples

Buildings Department Practice Note for Authorized Persons and Registered Structural Engineers 215

Current Procedures for Building Works and Street Works

Introduction

This practice note provides guidelines on current application.

Fast Track Application

2. ED has prepared current in-house works and street works reducing the number of (R.E.) and registered applications.

3. The proposed building works and street works (including administration) are subject to processing of:

- The new works and street works are not.
- The fast works.

Classification of works

4. For the purpose of the BO and works are classified as:

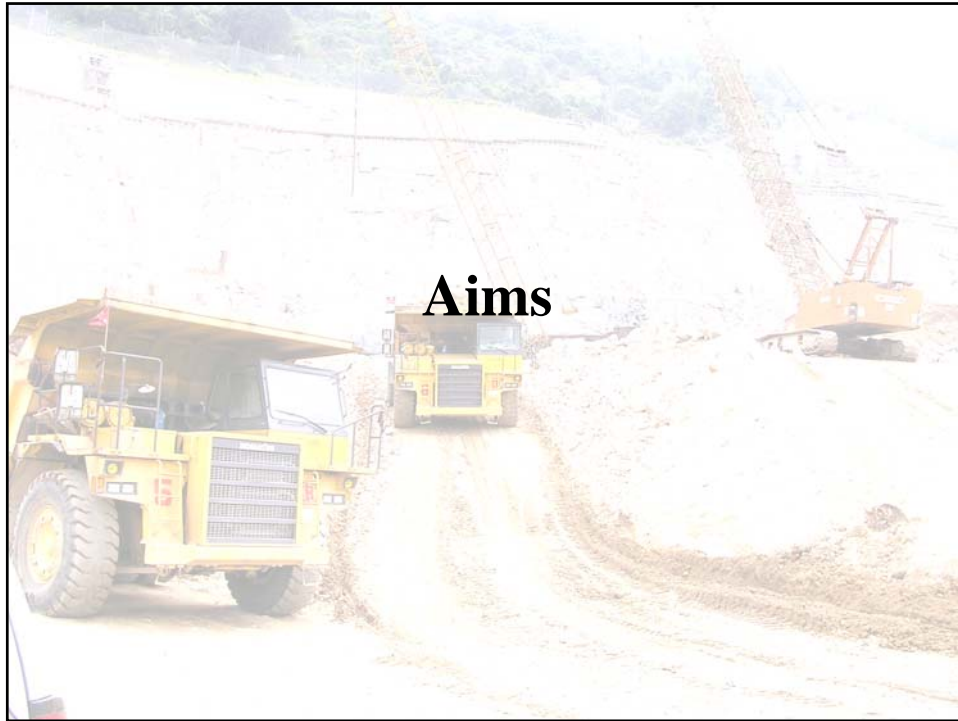
- Type I work with a face area of 10m² or less does not require construction of retaining wall.
- Type II work with a face area of more than 10m² requires construction of retaining wall.

Technical Memorandum for SUPERVISION PLANS 2005

Figure 19 - Passive Earth Pressure Coefficients for a Vertical Wall Retaining Sloping Ground

Enhancements via OBA project

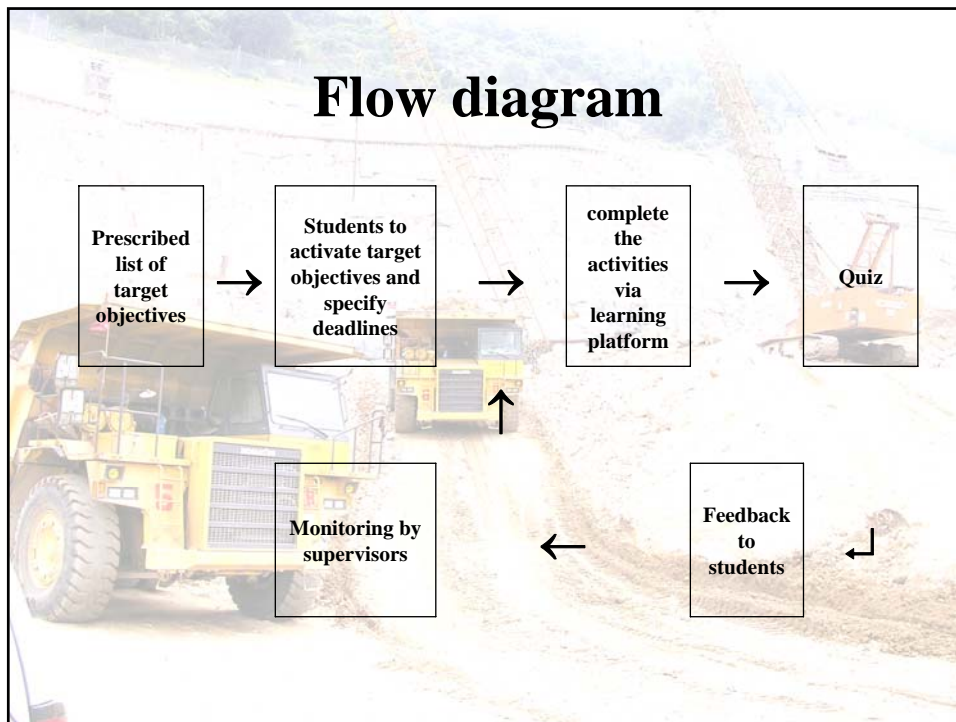
- Apart from making use of real-life projects to initiate learning:-
 - emphasis on students setting/mapping learning outcomes
 - encourage students to manage their learning outcomes
 - measure learning outcome achieved by each student
- Ultimate goal:-
 - Nourish life-long learning
 - Enhance self-learning and independent thinking
 - Freedom to pace learning according to ability



Aims of this OBA project

- To develop a **platform** for assessment of learning outcome
 - Partly instigated by the institutional goals on outcome-based approaches in student learning
- Problem-based learning platform provides assessment of learning outcome **by students**
 - Enable the students to setup their milestones to map his learning outcome with the targeted programme outcome
 - Enhance/stimulate students to appreciate critical thinking
- Facilities to assess learning outcome by students:-
 - Students to set up weekly target and deadlines
 - Students to keep track with the progress
 - Platform to prepare weekly summary

Flow diagram

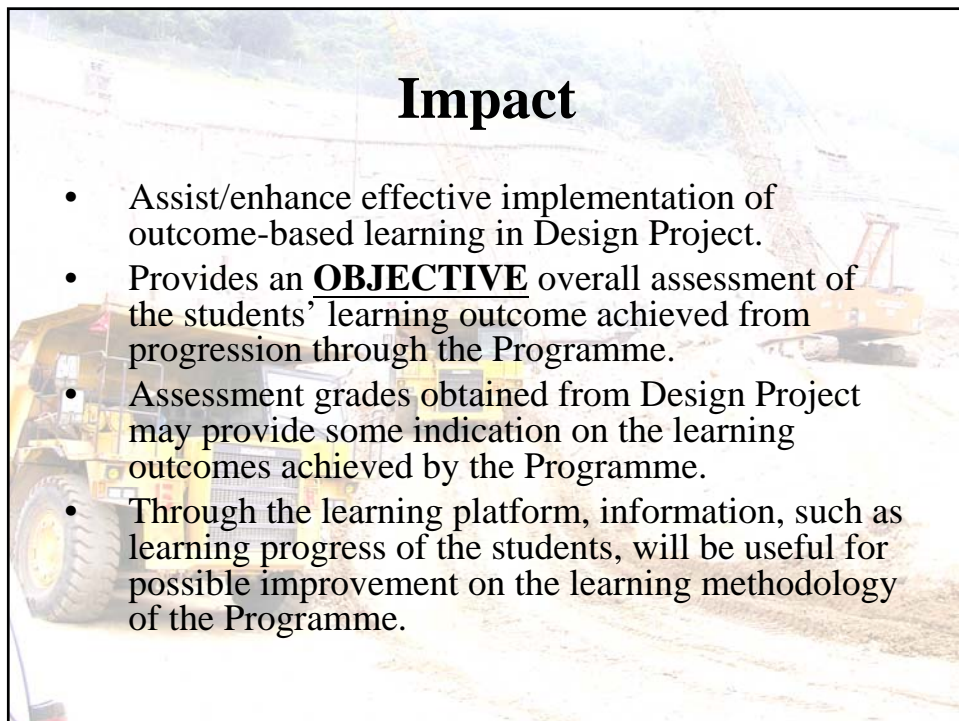


Learning Platform

- Pre-identified target objectives and outcomes:
 - Objectives: reading materials, examples, references, etc.
 - Expected learning outcomes: quiz, etc.
- Students:
 - Setup milestones on some/all target objectives
 - Quiz to attempt & scores/feedback to students
- Report progress in stages
 - Basic information, e.g. environmental issues, safety, etc.
 - Technical information, e.g. number of piles, uplift, wind reactions, etc.
- Timely feedback on progress/performance for students to keep track with learning outcomes



Impact and deliveries



Impact

- Assist/enhance effective implementation of outcome-based learning in Design Project.
- Provides an **OBJECTIVE** overall assessment of the students' learning outcome achieved from progression through the Programme.
- Assessment grades obtained from Design Project may provide some indication on the learning outcomes achieved by the Programme.
- Through the learning platform, information, such as learning progress of the students, will be useful for possible improvement on the learning methodology of the Programme.



Deliveries

- **Learning Platform**
 - accessible to students
- **Design Project Handbook**
 - user manual of the learning platform
- **New components**
 - target objectives
 - milestones
 - teaching methodologies
- **Evaluation plan**
 - assess the effectiveness/impact via questionnaires
 - provide useful hints for further development



Progress and difficulties



Time frame and personnel

- Date of completion: December 2009
- Trial run: 1st Semester 2009-2010
- Research personnel:
 - one Research Assistant
 - @HK\$13,800.00/month
 - 8 months
 - Civil Engineering based (initially)
 - IT experience is essential



Recruitment

- Advertised via PolyU Homepage
 - 21st June – 4th July 2008 (Civil)
 - 18th July – 8th August 2008 (Civil)
 - 29th October – 21st November 2008 (Civil or IT)
- 2 applications: both with unsuitable/unsound background and/or experience
- June – October 2008:
 - Through contacts in Mainland China
 - Not interested: nature of the research unrelated to Civil Engineering
- Eventually one is recruited
 - with only IT background
 - report duty in mid-end of February 2009



Other progress

- Some teaching materials were prepared
 - Compile and redevelop PowerPoint materials
 - Clips developed via Flash Player
- Meetings were held with internal/external lecturers of Design Project:-
 - Identify target objectives
 - Identify milestones
- Anticipate development on Learning Platform to commence shortly in March 2009



End of report