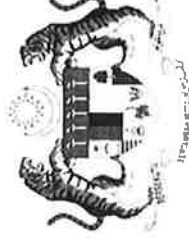


ASSESSING

PROGRAMME OUTCOME

AND

PROGRAMME EDUCATIONAL
OBJECTIVES



Constructive Alignment



Horizontal and vertical alignment

COURSE LEARNING OUTCOMES (CO)	PROGRAMME LEARNING OUTCOMES (PO)										METHOD OF DELIVERY	ASSESSMENT		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10				
Define soil as in engineering context and relate problems associated with the definition with local soil condition					√								Lectures and coursework (PBL)	Examination short report CW Interview
Identify and differentiate the different types of soil and their properties and classify soil using British and / or Unified Soil Classification System.	√												Lectures and laboratory work	Short test and laboratory work/report
Conduct laboratory tests for determination of soil index and compaction.	√	√											Demonstration and laboratory work.	Direct observation on laboratory work/report
Solve calculation problem using mechanics involving physical properties, compaction, seepage and effective stress.	√	√											Lecture and tutorials	Examination & graded tutorial.
Show the use of soil mechanics concepts in engineering works	√										√		Lecture, coursework. (PBL)	Short report & group interview

Assessment & Evaluation

Assessment

- To provide feedback to students to improve their learning
- To motivate students
- To diagnose students' strengths and weaknesses
- To help students to develop their skills of self assessment
- To provide a profile of what a student has to learn

Assessment and evaluation principle become more important for vertical alignment

Evaluation

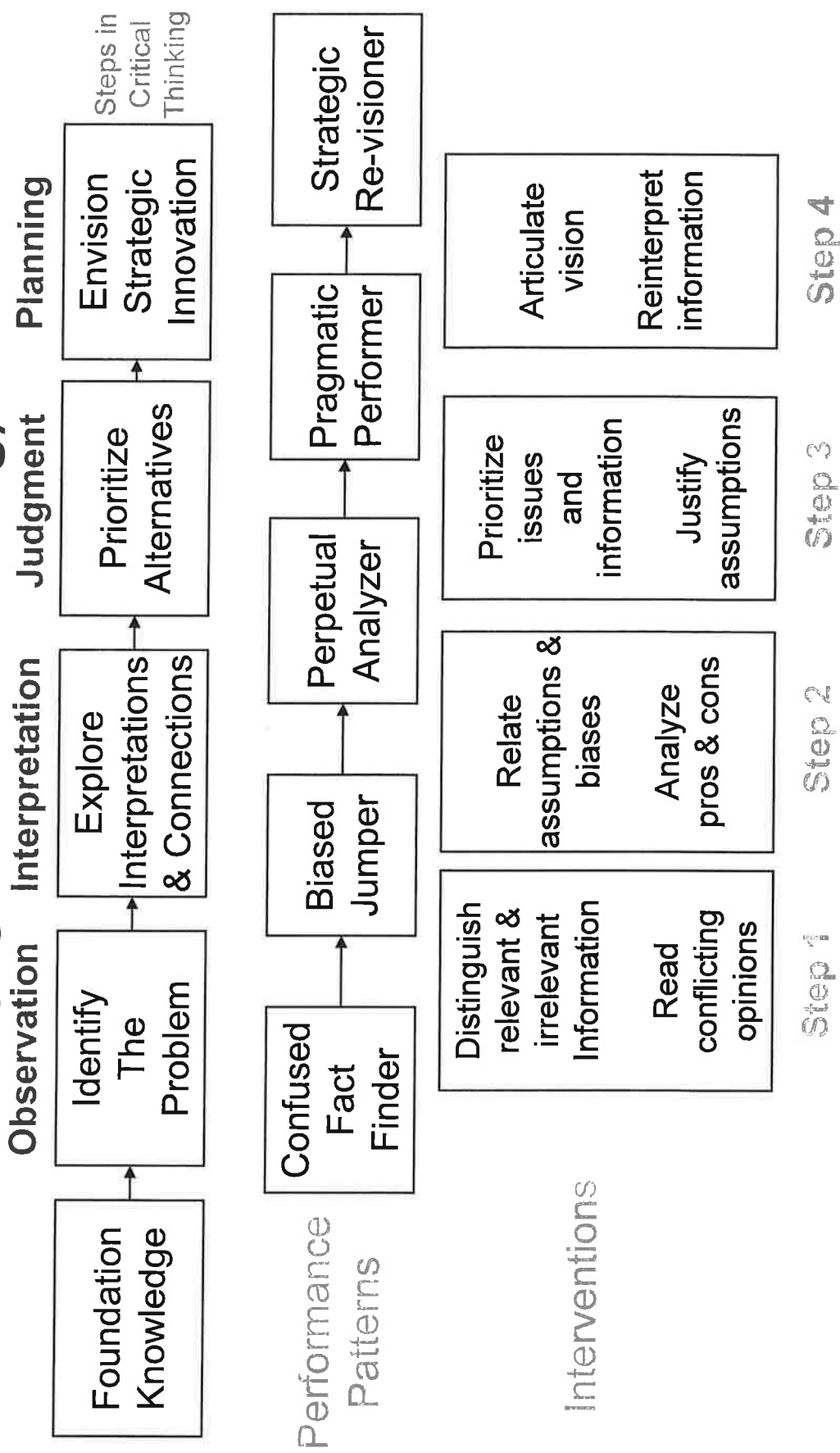
- To pass or failed a student
- To license to proceed
- To select for future course courses
- To license to practice
- To predict success in future courses
- To predict success in employment
- To select for future employment
- To provide to lecturers
- To motivate lecturers
- To evaluate a course's strengths and weaknesses
- To make the course appear 'respectable' and credit-worthy to other institutions and employers

How Shall We Develop PO

Is it through Formative or Summative Assessment?

- Formative
- Summative

Establishing Developmental Framework (e.g. Critical Thinking)



Steps for Better Thinking Performance Patterns, <http://www.wolcottlynch.com>

Program Learning Development Plan

Where will the Program Learning Outcomes be
infused across the Curriculum?

	Communicate orally and in writing	Analyze, interpret and evaluate results	Listen to diverse populations	Demonstrate teaching effectiveness
Course #1	Introduce	Introduce Emphasize	Introduce	Introduce
Course #2	Emphasize		Emphasize	
...	Use	Assess		Emphasize Use
Course #N	Use		Emphasize/ Use	Assess
Industrial Training		Assess	Use	
Capstone Course	Assess		Assess	Assess

Program Learning Development Plan

Table 2 - The changing focus of a programme as it moves through the different levels of study

Level	1	2	3	4
Subject	Consolidation	Development	Authority	Mastery
Skills	Learning	Key	Independence	Research
Intellectual capacities	Knowledge Understanding Manipulation	Application Analysis Synthesis	Evaluation Judgment Reasoning	Formulation Conceptualization Reflection

Program Learning Development Plan for Lab Work

	Level	Aims	Materials	Method	Answer
Demonstration	0	Given	Given	Given	Given
Exercise	1	Given	Given	Given	Open
Structured enquiry	2	Given	Given part or whole	Open or part given	Given
Open Enquiry	3	Given	Open	Open	Open
Project	4	Open?	Open	Open	Open

As one moves up the levels one moves further towards the development of active deep learning

Program Learning Development Plan for Lab Work

Demonstration

Usually done to demonstrate theoretical principles. Demonstrator is usually a lecturer or postgraduate student

Exercise

Tightly structured experiments designed to yield well-known results. Students learn to follow precise instructions and in so doing learn specific techniques of observation and manipulation. Careful reading of instruction can often reveal the answers required

Structured Enquiry

Lightly structured experiments which require students to select materials and to develop procedures. Students develop problem-solving and interpretative skills as well as manual and observation skills

Program Learning Development Plan – Lab Work

Open-ended Enquiry

Students identify a problem, formulate the problem clearly, choose and design experimental procedures, interpret results and consider their implications. The constraints on the student may be time and the range of equipment and materials available. Open-ended enquiries used in miniaturized form the skills of the research scientist. They can be useful for a preliminary for project work.. Students develop problem- solving and interpretative skills as well as manual and observation skills

Program Learning Development Plan – Lab Work

Projects

Based on long experiments of a series of experiments or field studies. The project may be selected by a student, offered by a supervisor, or by local industry or the community. The end products may be a dissertation, design plan, model, computer programme or a simulation. They enable students to explore a field deeply, they develop initiative and resourcefulness, they may stimulate a student's intellectual curiosity and they also develop project and time management skills. Guidelines for project are essentials

Using Level Descriptors / Level Expectation

LO – Soft Skill: Communication

Year 1 : can communicate effectively in a format appropriate to the discipline(s) and report practical procedures in a clear and concise manner

Year 2 : can communicate effectively in a manner appropriate to the discipline(s) and report practical procedures in a clear and concise manner in a variety of formats

Year 3 (honours) : can engage effectively in debate in a professional manner and produce detailed and coherent project report

Master's : can engage confidently in academic and professional communication with others, reporting on action, autonomously and competently

Purposes for a Program Assessment Plan

- Assessment is an ongoing activity intended to make **better decisions**:
 - How well are your students achieving your program learning outcomes?
 - Do you need to make changes in your curriculum?
 - What program learning outcomes need the most improvement?
 - What changes would you make to achieve these improvements?

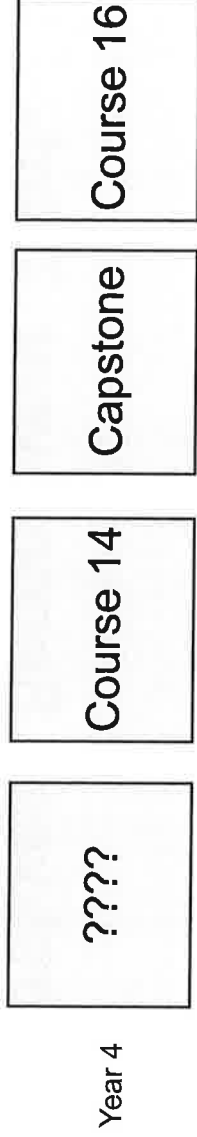
– ...

Stop

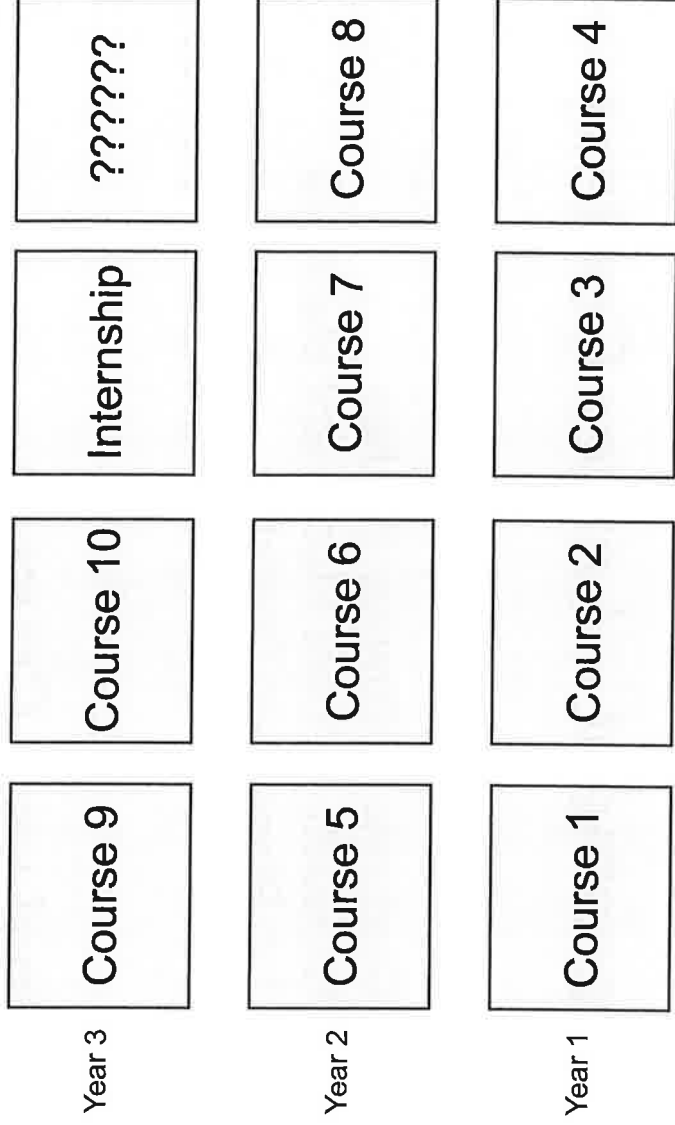
- **Assessment Plan Audit / Inventory:**
 - Before you may come up with good assessment plan, its only logical for you to reflect and study existing data showing your current practice?
 - You may audit your current practice using Assessment Plan Audit/Inventory

When will data on achievement of program learning outcomes be collected?

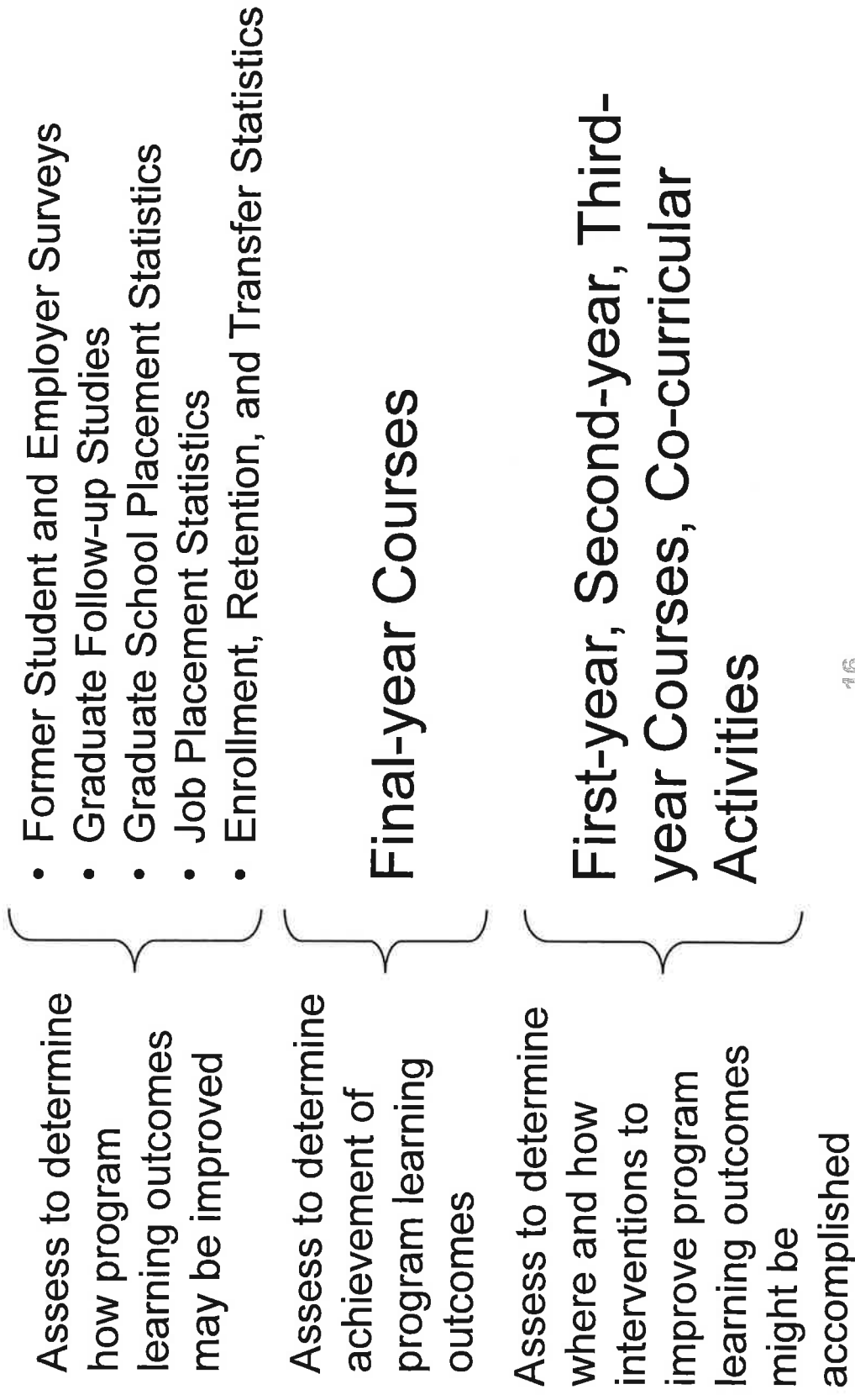
Assess to determine achievement with respect to program learning outcomes



Assess to determine where and how interventions to improve program learning outcomes might be accomplished



Program Assessment – Larger Context



Program Assessment – Where?

- What are strategic points in your curriculum for program assessment?
- Where can you get comprehensive assessment of multiple program outcomes for a low investment of resources?
 - Example: Final-year Capstone Project Course
 - Example: Key Integrative Third-year Course

Response

- Fieldwork
- Industrial training
- Undergraduate research projects
- Exit survey
- PBL lab
- External examiners for final year students
- Final year design portfolios

Section 3

AREAS OF CONCERN FOR CQI

Outcome Indicator

Program Assessment Matrix

Outcome indicators	Program outcomes						
	O1	O2	O3	O4	O5	O6	O7
Required courses							
Portfolio	3	3	3	3	3	3	3
FE Exam	3						
Design proj. report	2		3		3	1	2
Design proj. presentation	2		3		3	2	2
Exit interviews	2	2	2	2	2	2	2
...							
ENGR 101 (Fr. Engr.)			1	1	1	1	2
ENGL 365					3		
CHE 205	3				2	2	
CHE 311	3		1				
...							

3 = strongly addresses outcome

2 = addresses outcome

1 = marginally addresses outcome

Performance Target

Performance Target

Target conditions for outcome indicators

Example

The [average score, score earned by at least 80%] of the program graduates on the [FE Exam, standardized test item, portfolio evaluation] must be at least 75/100.

The outcome may be considered to have been achieved in a course if the performance targets for [all, 80%] of the relevant course learning objectives are achieved.

Possible Issues contd

Tracking of PO attainment

Day2 – Apply Developmental Framework in Curriculum design and delivery. Track attainment using the principle of formative assessment – identify strategic points for summative assessment (PO evaluation)

Selection of PO attainment evidence

come up with assessment plan inventory. Check whether enough assessment methods being used. Consider innovative and strong assessment methods for data collection to serve as evidence. Consider students portfolio, journal, reflective log, well tested instruments like PBL progress form etc. Consider indirect measurement – like survey or exit card

Possible Issues contd

Examination Question Preparation

Higher level taxonomy is best assess via low stake assessment and not via examination. If its to be incorporated in FE, high quality thinking question need to be design.

Lab Sheets - Redesign into semi structured

Cook book style lab sheet MT3 to
semi structure (open ended)