ASSESSMENT OF LEARNING OUTCOMES FOR CONTINUOUS QUALITY IMPROVEMENT (CQI) OF ACADEMIC PROGRAMS

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For the Simplest & Shortest Training Slides of OBE-Initial Level, all thanks goes to the Rector, NTU Faisalabad,
Prof. Dr. Tanveer Hussain.

BLESSINGS IN OPENESS TO ACCEPT I CAN BE WRONG

“Man gets whatever he strives for; ” اَنْ لَّيْسَ لِلْاِنْسَانِ اِلاَّ مَا سَعٰى

(Chapter 53-Surah Al-Najm, Verse 39)

کافر ہے تو ہے تابع تقدیر مسلمان
مومن ہے تو خود آپ ہے تقدیر الہٰی

(Dr. Allama Muhammad Iqbal RA)

“Each failure contains the seeds of your next success – if you are willing to learn from it.” (Paul Allen, Co-Founder of MICROSOFT)

“Man is the architect of his own destiny”

“Where there is will, there is way”

DEFINING OUTCOMES

WHAT THE STUDENTS WILL BE ABLE TO DO:

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) ⟷ 3 to 5 years after graduation

↓

PROGRAM LEARNING OUTCOMES (PLOs) ⟷ At the time of graduation

↓

CORUSE LEARNING OUTCOMES (CLOs) ⟷ At the completion of a course

BS Textile Engineering: EXAMPLE Program Educational Objectives (PEOs)

3 to 5 years after graduation, graduates should be able to demonstrate:

1. KNOWLEDGE BASE

- of mathematics, natural sciences, engineering fundamentals, and textile engineering specialization

2. CORE TECHNICAL SKILLS

- for the investigation and analysis of complex textile engineering problems and design of their solutions

3. SUPPORTING SKILLS

- for effective communication, use of IT tools, quality & engineering management, and working in multi-disciplinary teams

4. BEHAVIOR

- of being socially and ecologically responsible, and ethical in decision making

5. ATTITUDE

- of being a lifelong learner in the practical life.

BS Textile Engineering: EXAMPLE Program Learning Outcomes (PLOs)

At the time of graduation, graduates should be able to demonstrate:

No.	ATTRIBUTES	OUTCOMES
1	Knowledge base for Engineering	Ability to apply knowledge of mathematics, natural sciences, engineering fundamentals and textile engineering specialization to the solution of complex textile engineering problems.
2	Problem Analysis Skills	Ability to identify, formulate, research literature and analyse complex textile engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3	Solution Design Skills	Ability to design solutions for complex textile 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.
4	Investigation & Experimentation Skills	Ability to conduct investigations of complex textile engineering problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
5	Use of Engineering & IT Tools	Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex textile engineering problems, with an understanding of the limitations.
6	Social Responsibility	Ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex textile engineering problems.
7	Environment & Sustainability	Ability to understand and evaluate the sustainability and impact of professional engineering work in the solution of complex textile engineering problems.
8	Professional Ethics	Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9	Individual & Teamwork	Ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
10	Communication Skills	Ability to communicate effectively on complex textile engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	Quality & Engineering Management	Ability to demonstrate knowledge and understanding of quality & engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage textile projects and in multidisciplinary environments.
12	Lifelong Learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Mapping PLOs vs Courses:

SEM	COURSE CODE	COURSE TITLE	PROGRAM LEARNING OUTCOMES											
			1	2	3	4	5	6	7	8	9	10	11	12
1	TE-1051	Introduction to Textile Eng.	☑											
	ENG-1091	Functional English										☑		
	MA-1001	Calculus	☑	☑										
	CH-1001	Chemistry-I	☑	☑		☑								
	PH-1001	Physics-I	☑	☑		☑								
	IS-1091	Islamic Studies								☑				
2	TM-1051	Textile Raw Materials	☑											
	CSF-1071	Introduction to Computers					☑							
	MA-1002	Engineering Math-I	☑	☑										
	PH-1002	Physics-II	☑	☑		☑								
	CH-1002	Chemistry-II	☑	☑		☑								
	ME-1111	Engineering Drawing					☑							
	TM-1052	Fiber Science	☑	☑										
3	YM-2011	Introduction to Yarn Manufacturing	☑											
	FM-2021	Introduction to Fabric Manufacturing	☑											
	TP-2031	Introduction to Textile Chemical Processing	☑											
	GM-2041	Introduction to Garment Manufacturing	☑											
	PS-2092	Pak Studies						☑						
4		Textile Engineering Depth Elective-I	☑	☑	☑	☑					☑			☑
	ME-2113	Instrumentation & Control	☑				☑							
	ME-2112	Mechanical Engineering Fundamentals	☑											
	TM-2052	Polymer Science & Eng.	☑	☑										
	ENG-2092	Communication & Presentation Skills										☑		
	MA-2001	Engineering Math-II	☑	☑										
5		Textile Engineering Depth Elective-II	☑	☑	☑	☑					☑			☑
	ENG-3091	Technical Writing										☑		
	CSE-3071	Computer Programming					☑							
	TM-3051	Mechanics of Fibrous Structures	☑	☑										
	SS-3091	Social Science-I						☑		☑				
	TM-3052	High-Performance Fibers	☑											
6		Textile Engineering Depth Elective-III	☑	☑	☑	☑					☑			☑
		Textile Engineering Depth Elective-IV	☑	☑	☑	☑					☑			☑
	EE-3111	Electrical & Electronic Systems	☑	☑										
	ME-3112	Textile Egg. Utilities & Services	☑	☑										
	CSE-3072	Computer Applications in Engineering Design			☑		☑							
		INTERNSHIP		☑		☑					☑	☑		☑
7		Textile Engineering Depth Elective-V	☑	☑	☑	☑					☑			☑
		Senior Design Project-I	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	TE-4051	Color Science	☑	☑										
	MA-4001	Statistical Methods in Textile Engineering	☑	☑		☑	☑							
	MG-4081	Management Science - I											☑	☑
	ES-4031	Environmental Issues of Textile Industry							☑					
8		Textile Engineering Depth Elective-VI	☑	☑	☑	☑					☑			☑
		Senior Design Project-II	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	MG-4083	Management Science- II											☑	☑
		Textile Engineering Depth Elective-VII	☑	☑	☑	☑					☑			☑
	SS-4091	Social Science-II						☑		☑				

46 course

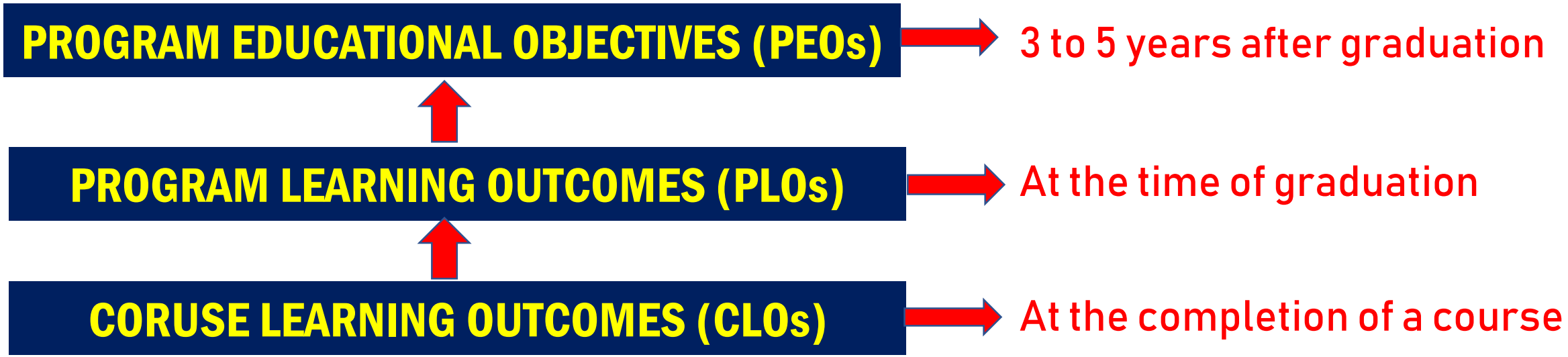
MAPPING CLOs vs. PLOs:
Course: Dyeing Theory & Practice

No.	COURSE LEARNING OUTCOMES	PROGRAM LEARNING OUTCOMES											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Knowledge and understanding of dyeing theory, colorants & auxiliaries, dyeing methods and dyeing machinery.	☑											
2	Ability to apply different dyes on various substrates by different methods and using different machines.	☑											
3	Ability to anlayze and troubleshoot textile dyeing problems.		☑										
4	Ability to design recipes and methods for dyeing different textile substrates and their blends.			☑									
5	Ability to design and conduct textile dyeing experiments, analysing and interpreting data, and synthesizing information to provide valid conclusions.				☑								
6	Ability to function effectively individually and in teams during experimental work.									☑			
7	Ability to recognize the need for, and have the preparation and ability to engage in independent and life-long learning.												☑

MAPPING CLOs vs. ASSESSMENT TOOLS:
Course: Dyeing Theory & Practice

No.	COURSE LEARNING OUTCOMES	ASSESSMENT TOOLS									
		EXAMS	QUIZZES	HOME ASSIGNMENTS	LAB ASSIGNMENTS	MILL ASSIGNMENTS	CLASS PRESENTATION	MINI-PROJECT	VIVA VOCE	ANNOTATED BIBLIOGRAPHY	END-SEMESTER SURVEY
1	Knowledge and understanding of dyeing theory, colorants & auxiliaries, dyeing methods and dyeing machinery.	☑	☑	☑							☑
2	Ability to apply different dyes on various substrates by different methods and using different machines.				☑				☑		☑
3	Ability to anlayze and troubleshoot textile dyeing problems.					☑					☑
4	Ability to design recipes and methods for dyeing different textile substrates and their blends.				☑						☑
5	Ability to design and conduct textile dyeing experiments, analysing and interpreting data, and synthesizing information to provide valid conclusions.				☑						☑
6	Ability to function effectively and in teams during experimental work.				☑	☑					☑
7	Ability to recognize the need for, and have the preparation and ability to engage in independent and life-long learning.									☑	☑

ASSESSMENT OF OUTCOMES



ASSESSMENT VS. EVALUATION

Assessment

- Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of student outcomes and program educational objectives.

Evaluation

- Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which student outcomes are being attained. Evaluation results in decisions and actions regarding program improvement.

ASSESSMENT TYPES

Formative Assessment

- The collection of data and the feedback of the results on an ongoing basis" (G. Rogers & J. Sando, 1996) – For Continuous Improvement to students learning and T&L activities

Summative Assessment

- Designed to produce information that can be used to make decisions about the overall success of the student, project or process. (G. Rogers & J. Sando, 1996) – For grading purposes

ASSESSMENT MEASURES

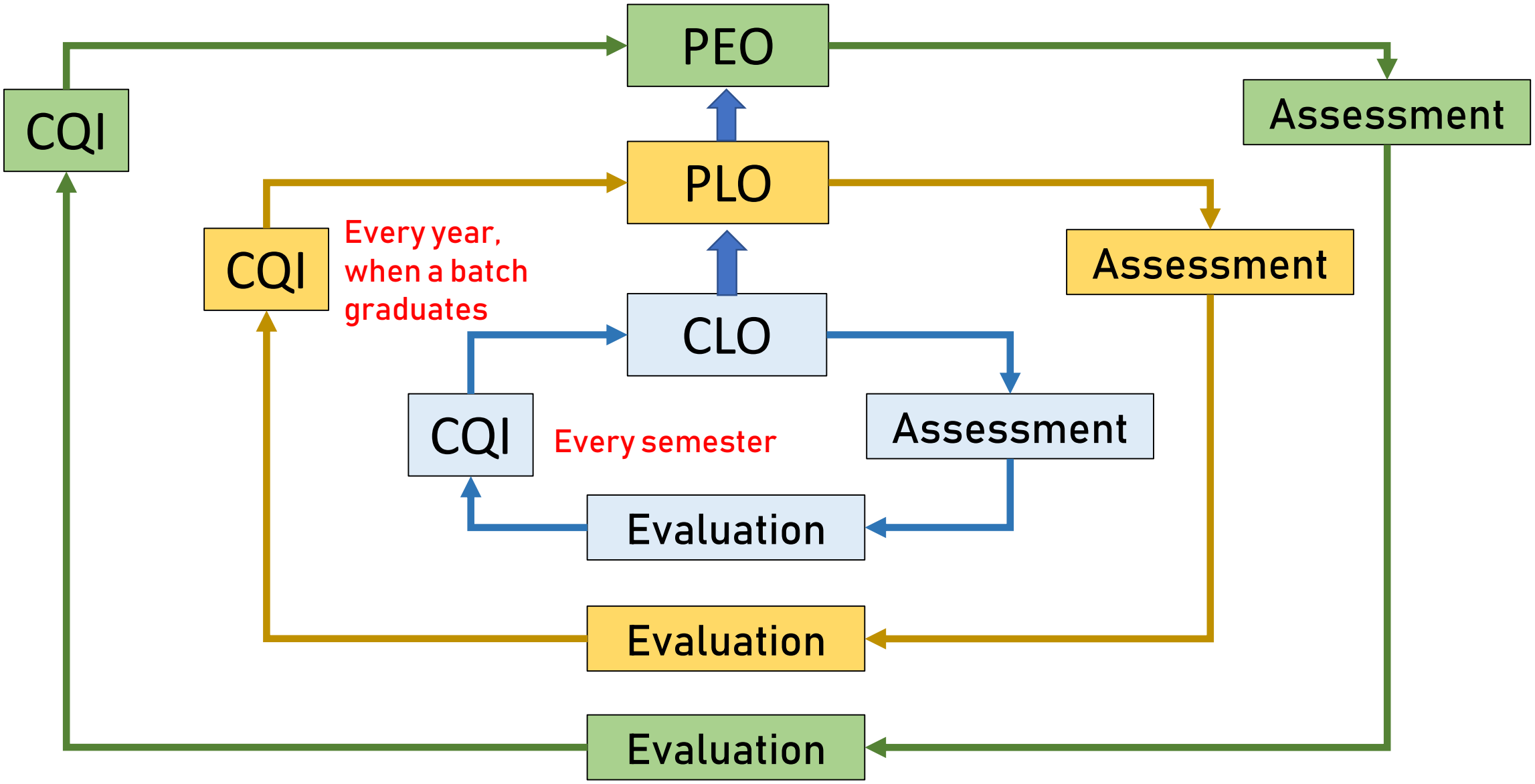
Direct measures

- provide for the direct examination or observation of student knowledge or skills against measurable learning outcomes –Assignments, tests, final exam, reports, presentation, project, etc., where the COs and POs can be measured directly.

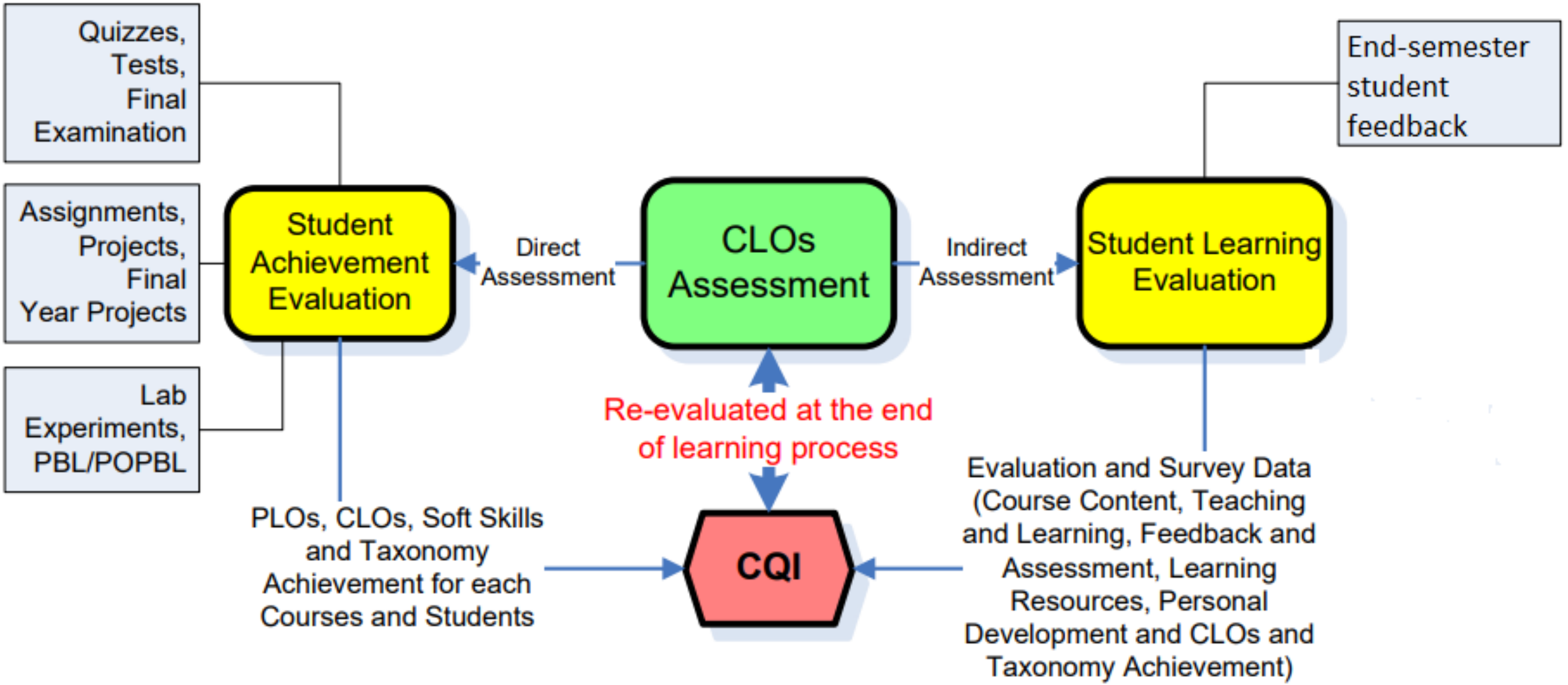
Indirect measures

- ascertain the perceived extent or value of learning experiences –course-end survey, graduating students survey, alumni and employer survey etc.

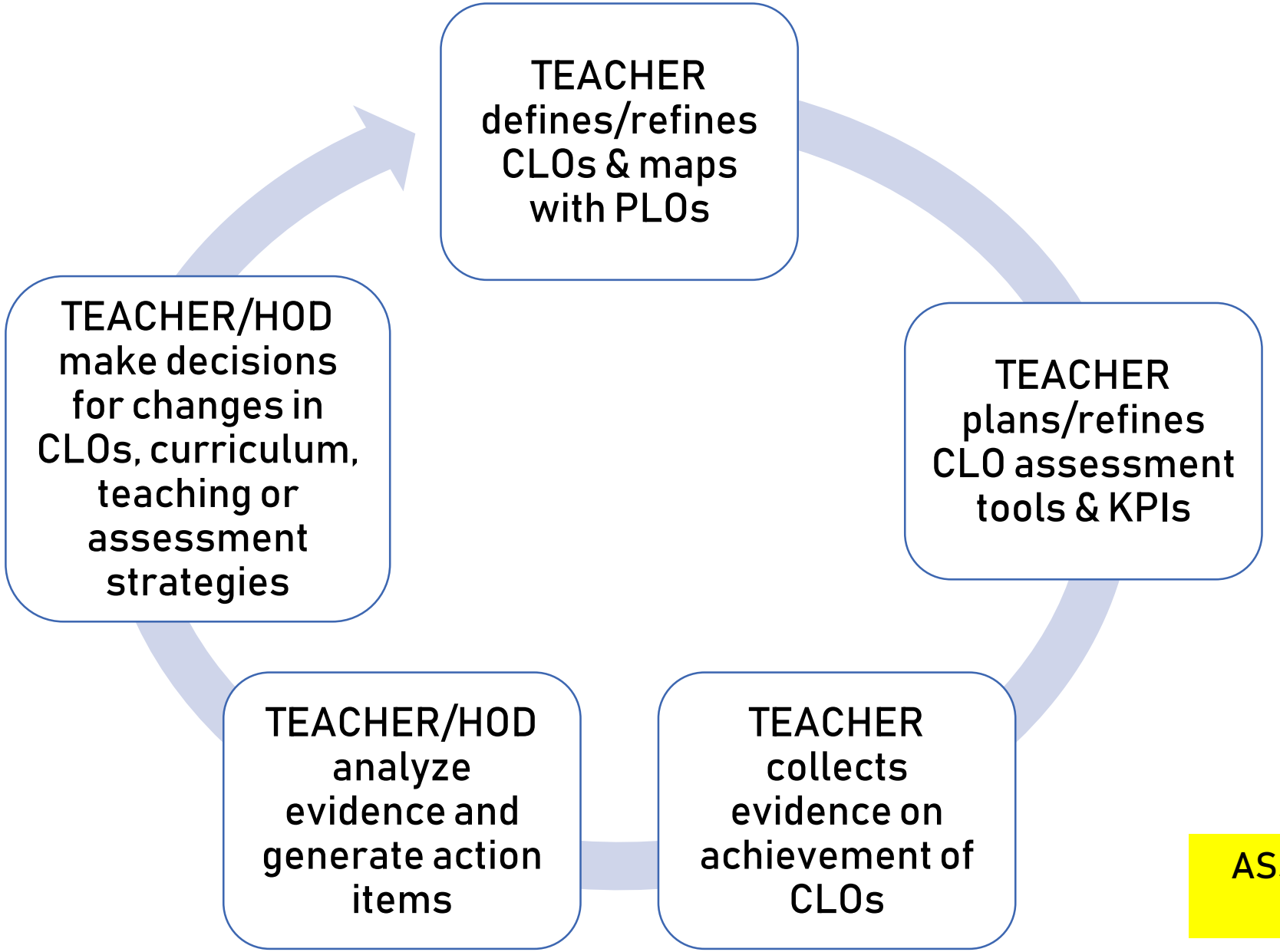
CQI CYCLES


PEO
CQI
Assessment
PLO
CQI
Every year, when a batch graduates
Assessment
CLO
CQI
Every semester
Assessment
Evaluation
Evaluation
Evaluation

ASSESSMENT OF CLOs



EXAMPLE CLO ASSESSMENT CYCLE FOR CQI

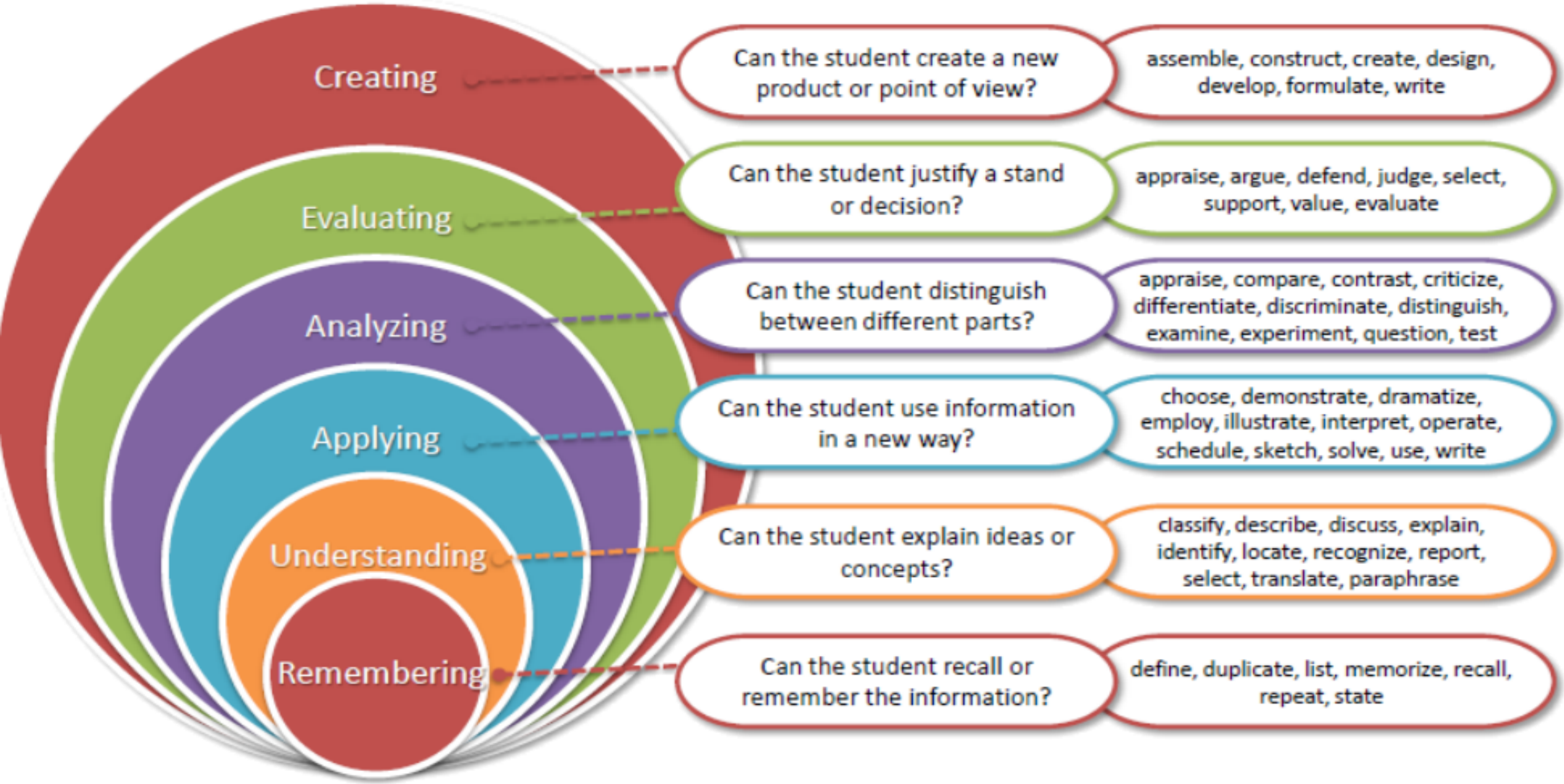


ASSESSMENT CYCLE:
Every Semester

EXAMPLE COURSE LEARNING OUTCOMES (CLOs)

Linked PLO	COURSE LEARNING OUTCOMES: After completing Research Methodology course, students should have:		Taxonomy Level
PLO-2	CLO-1	Ability to formulate a research question	C4, C6
PLO-5	CLO-2	Ability to design experiments	C4, C6
PLO-10	CLO-3	Ability to write a research proposal	C4, C5, C6
PLO-10	CLO-4	Ability to write a short review paper	C4, C5
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments	C4, C5, P3
PLO-10	CLO-6	Ability to write a research paper	C4, C5, C6

WHAT DO WE WANT TO ASSESS?



EXAMPLES OF DIRECT ASSESSMENT TOOLS FOR CLOs

- TESTS clearly linked to CLOs
- ASSIGNMENTS clearly linked to CLOs
- PROJECTS clearly linked to CLOs
- ORAL PRESENTATIONS clearly linked to CLOs
- STUDENT PORTFOLIOS clearly linked to CLOs

LINKING ASSIGNMENTS WITH CLOs

Linked PLO	COURSE LEARNING OUTCOMES: After completing **Research Methodology** course, students should have:		ASSIGNMENTS						Taxonomy Level
PLO-2	CLO-1	Ability to formulate a research question	A1						C4, C6
PLO-5	CLO-2	Ability to design experiments		A2					C4, C6
PLO-10	CLO-3	Ability to write a research proposal			A3				C4, C5, C6
PLO-10	CLO-4	Ability to write a short review paper				A4			C4, C5
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments					A5		C4, C5, P3
PLO-10	CLO-6	Ability to write a research paper						A6	C4, C5, C6

EXAMPLE RUBRIC FOR ASSESSING CLO-4/A4

	Beginning/Poor 2.5 pts	Developing/Fair 5 pts	Accomplished/Good 7.5 pts	Exemplary/Excellent 10 pts
Topic Selection	Topic is very general and has no focus. Scope of the paper is so broad it is impossible to give proper treatment within the given length.	Student has narrowed the topic somewhat. Further research may lead to a better topic selection.	Topic is specific enough that the student can give proper treatment within the given length. Student may still need to narrow the focus by applying specific criteria to eliminate unnecessary information.	Topic of the paper is clearly defined. Research focus has been narrowed by specific criteria. The state-of-the-art may be clearly given within the paper's length.
Content	Research articles reviewed are scattered and unrelated. Student clearly did not filter out irrelevant articles and instead summarized the top "web hits".	Articles reviewed had some relation to each other and to the chosen topic. Keyword search may need to be refined.	A good general review of the literature is included, covering most of the seminal early papers and the most relevant current papers. Papers reviewed are cohesive and inter-related.	All relevant papers are reviewed, from seminal early works to the latest current developments. The articles reviewed are clearly inter-related and build upon each other to show how we have progressed to the current state-of-the-art.
Organization	Writing is not logically organized. Paragraphs lack topic sentences and may contain more than one major idea. Paragraphs and sentences do not support each other.	In general, writing is logically organized. Occasionally paragraphs contain more than one main idea or contain sentences unrelated to the main idea. Some support and flow among paragraphs. Reader has a fairly clear idea of what the writer intends.	Writing is logically organized to support the central purpose. Paragraphs contain only one main idea, with each paragraph supporting the others. The reader can follow the structure of the paper and understands the writer's intentions.	Ideas are arranged logically to support the purpose of the paper. Paragraphs contain one topic sentence, and supporting sentences clearly flow from one to the other. Paragraphs also are clearly linked to each other. The reader can easily follow the paper.
Sentence Structure	Errors in sentence structure are frequent enough to be a major distraction to the reader.	Some sentences are awkwardly constructed so that the reader is occasionally distracted.	Sentences are well-phrased and there is some variety in length and structure. Flow from sentence to sentence is generally smooth.	Sentences are well-phrased and varied in length and structure. They flow smoothly from one to another.
Grammar, spelling, punctuation	There are so many errors the meaning is obscured. Student obviously did not proof read the paper at all.	Paper has many distracting errors. Perhaps some editing did occur.	There are occasional errors, but they are not too distracting and do not obscure the meaning of the sentence.	Writing is free or almost free of errors.
Use of References	Student failed to cite sources. Very few references given throughout paper, even though the content clearly did not originate from the student.	Although attributions are occasionally given, many statements seem unsubstantiated. Sources of information are unclear.	Professionally legitimate sources are generally present and attribution is, for the most part, clear and fairly represented. Student made a good effort at citing sources.	Compelling evidence from legitimate sources are given. Attribution is clear and fairly represented.
Quality of References	Virtually no professionally reliable sources. Random websites with no qualifications are references. The Wikipedia appeared to be the only source.	Most of the references are from sources that are not peer-reviewed. Accuracy of the material is unable to be substantiated.	Majority of the references cited are from peer-reviewed sources. Accuracy of some sources may not be verifiable but are generally regarded as legitimate. Minimal use of Wikipedia.	References are primarily peer-reviewed professional journals or other approved sources. Reader is confident that information and ideas can be trusted.

DIRECT CLO ASSESSMENT RESULTS EXAMPLE...

DIRECT ASSESSMENT of COURSE LEARNING OUTCOMES (CLOs) through Assignments, projects etc.							
Linked PLO	COURSE LEARNING OUTCOMES		Assessment Tool	No. of Students with Respective Level (Score) for CLO Achievement			
				Excellent (=>85%)	Good (71-84%)	Fair (61-70%)	Poor <60%
PLO-2	CLO-1	Ability to formulate a research question	Assignment 1				
PLO-5	CLO-2	ability to design experiments	Assignment 2				
PLO-10	CLO-3	Ability to write a research proposal	Assignment 3				
PLO-10	CLO-4	Ability to write a short review paper	Assignment 4				
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments	Assignment 5				
PLO-10	CLO-6	Ability to write a research paper	Assignment 6				
Average No. of Students with respective level/score for CLO achievement							
TARGET KPI : Min. 60% students should get good/excellent avg. achievement of CLOs.							

EXAMPLE TOOL FOR INDIRECT ASSESSMENT OF CLOs

STUDENT FEEDBACK ON ATTAINMENT OF COURSE LEARNING OUTCOMES

Program:	
Course:	
Student ID:	

Instructions: By ticking ☑ in appropriate box, please indicate how confident are you regarding the attainment of each course learning outcome (CLO).

COURSE LEARNING OUTCOMES		Excellent (5.0)	Good (4.0)	Average (3.0)	Fair (2.0)	Poor (1.0)
CLO-1	Ability to formulate a research question					
CLO-2	ability to design experiments					
CLO-3	Ability to write a research proposal					
CLO-4	Ability to write a short review paper					
CLO-5	Ability to use MINITAB for design & analysis of experiments					
CLO-6	Ability to write a research paper					

INDIRECT CLO ASSESSMENT RESULTS EXAMPLE

INDIRECT ASSESSMENT of COURSE LEARNING OUTCOMES (CLOs) through students' feedback							
Linked PLO	**COURSE LEARNING OUTCOMES**		**No of Students with Respective Level (Score) of Confidence in Achieving CLOs**				
			Excellent (5.0)	**Good (4.0)**	**Average (3.0)**	**Fair (2.0)**	**Poor (1.0)**
PLO-2	CLO-1	Ability to formulate a research question					
PLO-5	CLO-2	ability to design experiments					
PLO-10	CLO-3	Ability to write a research proposal					
PLO-10	CLO-4	Ability to write a short review paper					
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments					
PLO-10	CLO-6	Ability to write a research paper					
Avrg. No. of Students with resp. level/score of confidence for CLO achievement							
TARGET KPI : Min. 60% students should have good or excellent avg. confidence in achievement of CLOs.							

EXAMPLE COURSE ASSESSMENT REPORT FOR CQI

COURSE ASSESSMENT REPORT

Course Code:			
Course Name:			
Program:			
Session:			
Semester/Year:		**Total No. of Students:**	40

DIRECT ASSESSMENT of COURSE LEARNING OUTCOMES (CLOs) through Assignments, projects etc.

Linked PLO	COURSE LEARNING OUTCOMES		Assessment Tool	No. of Students with Respective Level (Score) for CLO Achievement			
				Excellent (=>85%)	Good (71-84%)	Fair (61-70%)	Poor <60%
PLO-2	CLO-1	Ability to formulate a research question	Assignment 1	15	15	5	5
PLO-5	CLO-2	ability to design experiments	Assignment 2	10	10	10	10
PLO-10	CLO-3	Ability to write a research proposal	Assignment 3	15	15	5	5
PLO-10	CLO-4	Ability to write a short review paper	Assignment 4	10	10	10	10
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments	Assignment 5	15	15	5	5
PLO-10	CLO-6	Ability to write a research paper	Assignment 6	15	15	5	5
Average No. of Students with respective level/score for CLO achievement				13.3	13.3	7.0	7.0

TARGET KPI : Min. 60% students should get >70% avg. achievement score of CLOs.

Percentage of students meeting Target KPI:	**67%**

INDIRECT ASSESSMENT of COURSE LEARNING OUTCOMES (CLOs) through students' feedback

Linked PLO	COURSE LEARNING OUTCOMES		No of Students with Respective Level (Score) of Confidence in Achieving CLOs				
			Excellent (5.0)	Good (4.0)	Average (3.0)	Fair (2.0)	Poor (1.0)
PLO-2	CLO-1	Ability to formulate a research question	15	15	5	5	0
PLO-5	CLO-2	ability to design experiments	10	10	10	10	0
PLO-10	CLO-3	Ability to write a research proposal	15	15	5	5	0
PLO-10	CLO-4	Ability to write a short review paper	10	10	10	10	0
PLO-5	CLO-5	Ability to use MINITAB for design & analysis of experiments	15	15	5	5	0
PLO-10	CLO-6	Ability to write a research paper	15	15	5	5	0
Avrg. No. of Students with resp. level/score of confidence			13.3	13.3	6.7	6.7	0.0

TARGET KPI : Min. 60% students should have good or excellent avg. confidence in achievement of CLOs.

Percentage of students meeting Target KPI:	**67%**

AGGREGATE MARKS OF THE STUDENTS

Aggregate Marks %:	=>85%	71-84%	61-70%	50-60%	<50%
No. of Students:	10	10	10	10	10

Target KPI: Min. 60% student should get >60% aggregate

%age of Students meeting Target KPI:	**75%**

TEACHER'S REMARKS FOR CONTINUOUS QUALITY IMPROVEMENT (CQI)

A. Remarks about level of CLO achievement and distribution of grades, and action plan for any change in curriculum, delivery or assessment methods.

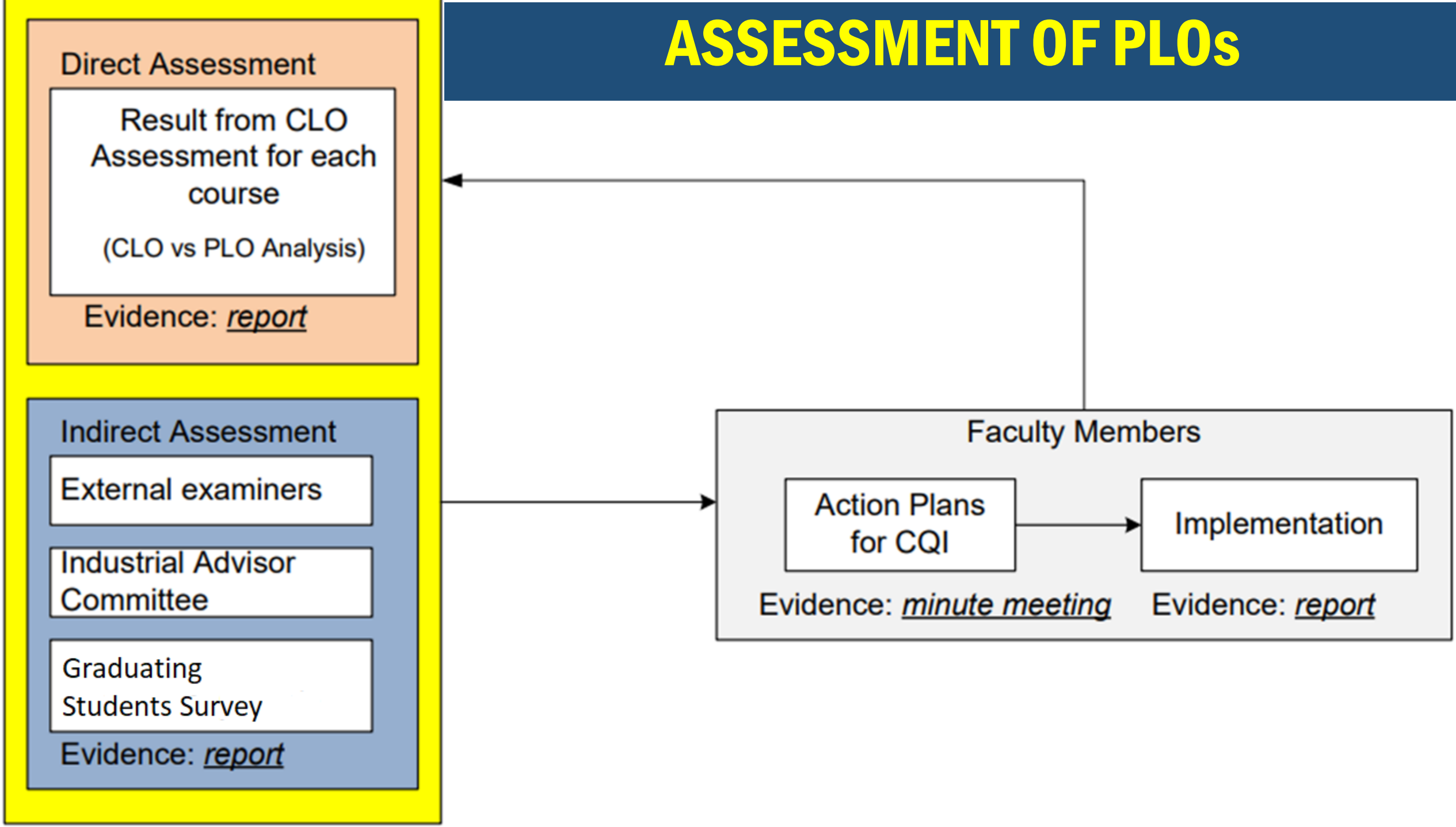
TEACHER		**DATE:**	
SIGNATURE			

HOD'S REMARKS FOR CONTINUOUS QUALITY IMPROVEMENT (CQI)

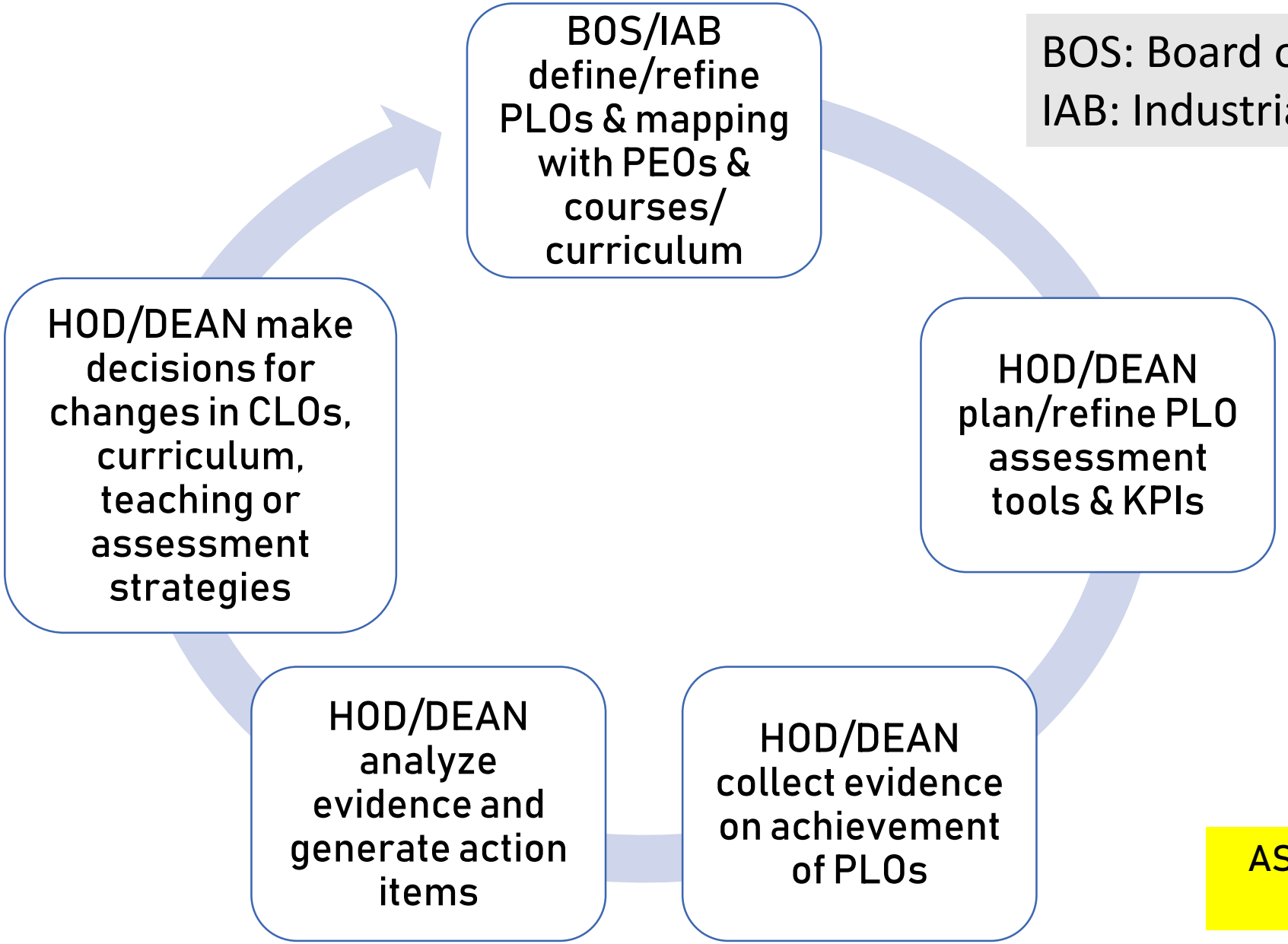
A. Remarks about level of CLO achievement and distribution of grades, and action plan for any change in curriculum, delivery or assessment methods.

HOD		**DATE:**	
SIGNATURE			

ASSESSMENT OF PLOs



EXAMPLE PLO ASSESSMENT CYCLE FOR CQI



BOS: Board of Studies
IAB: Industrial Advisory Board

ASSESSMENT CYCLE: Every Year

EXAMPLE KPIs & ASSESSMENT TOOLS FOR PLOs

PLO-10 COMMUNICATION

An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

ASSESSMENT TOOLS	KPIs
Direct assessment based on avg. % marks in the relevant courses	Avg. 60% of the students attain at least 60% of marks
Indirect assessment based on Graduating Students Survey	>60% graduating students rate PLO achievement 3 or higher on 1-5 scale.

COURSES RELATED TO PLO-10

No.	CODE	TITLE	%age of Students with>60% aggregate marks
1	ENG-1091	Functional English	60
2	ENG-2092	Communication & Presentation Skills	60
3	ENG-3091	Technical Writing	70
4	YM-4019	Final Year Project	70
AVERAGE			65

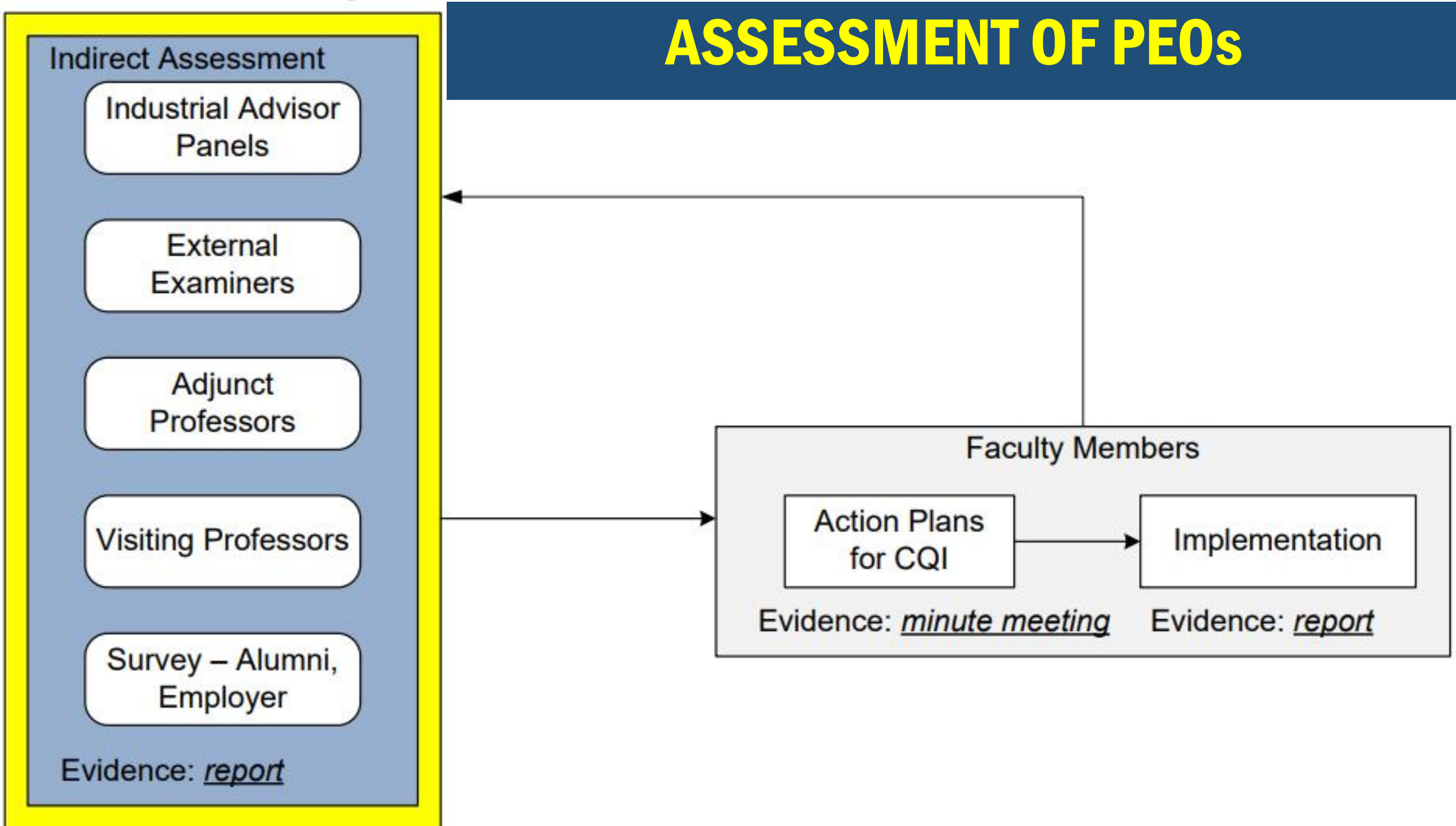
EXAMPLE GRADUATING STUDENTS SURVEY FORM

(To be filled by graduating students)

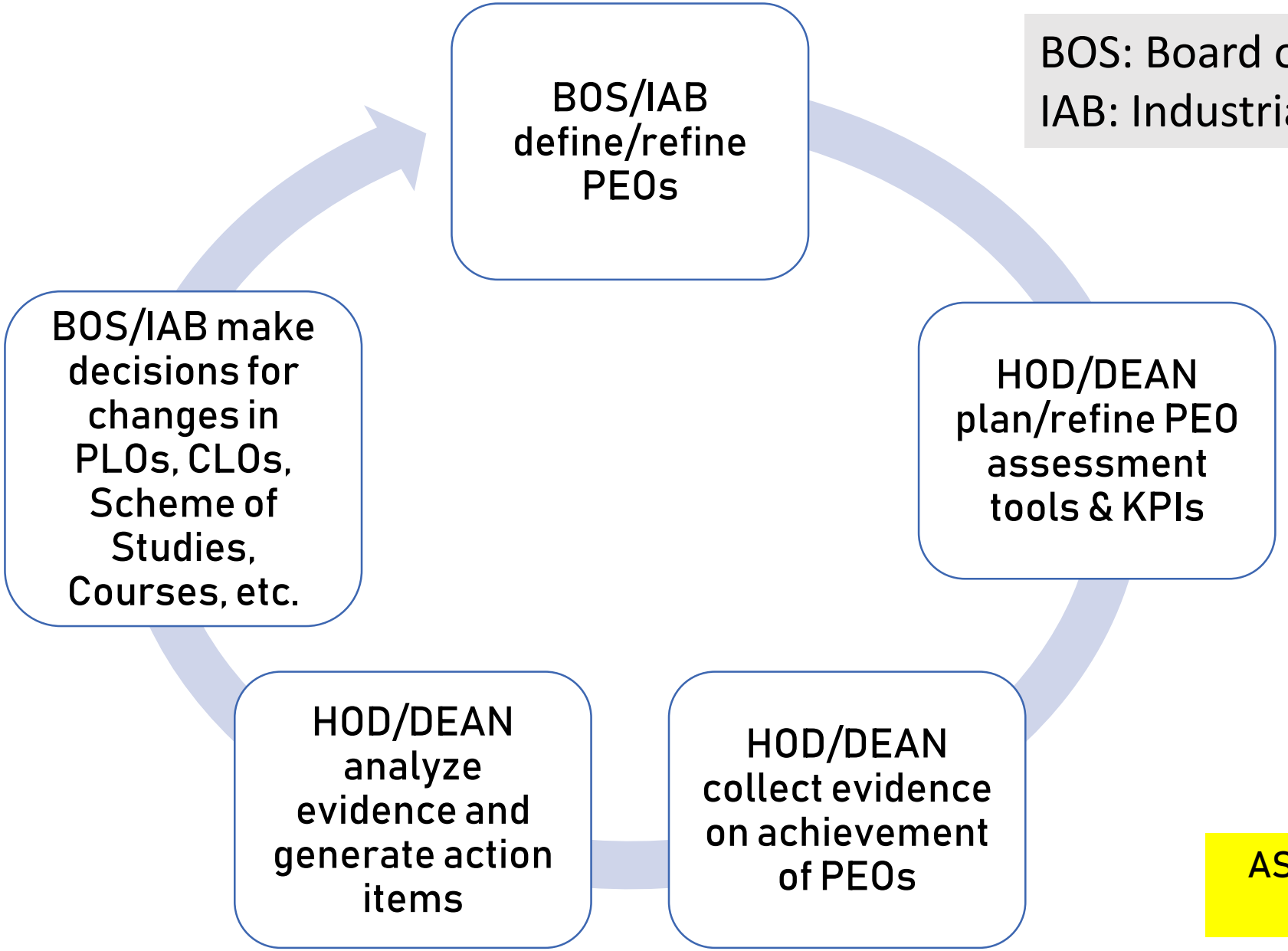
Please select the most appropriate score based on your agreement with the given statement.

S No	Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Adequate engineering knowledge has been provided to you during the programme?	1	2	3	4	5
2.	Programme has provided you problem analysis skills	1	2	3	4	5
3.	You are able to design and development solutions to technical problems	1	2	3	4	5
4.	You can perform investigation of a technical problem	1	2	3	4	5
5.	Adequate skills are provided to use modern tools	1	2	3	4	5
6.	Awareness about social issues related to engineering is provided	1	2	3	4	5
7.	Sustainability and environmental aspects of engineering are taught	1	2	3	4	5
8.	You are aware of your ethical and professional responsibilities	1	2	3	4	5
9.	You were provided opportunities to work as an individual or member of a team on projects	1	2	3	4	5
10.	You are able to effectively communicate through oral and written mediums	1	2	3	4	5
11.	Project management skills have been learned during the course	1	2	3	4	5
12.	You are aware of the importance of lifelong learning	1	2	3	4	5

ASSESSMENT OF PEOs



EXAMPLE PEO ASSESSMENT CYCLE FOR CQI



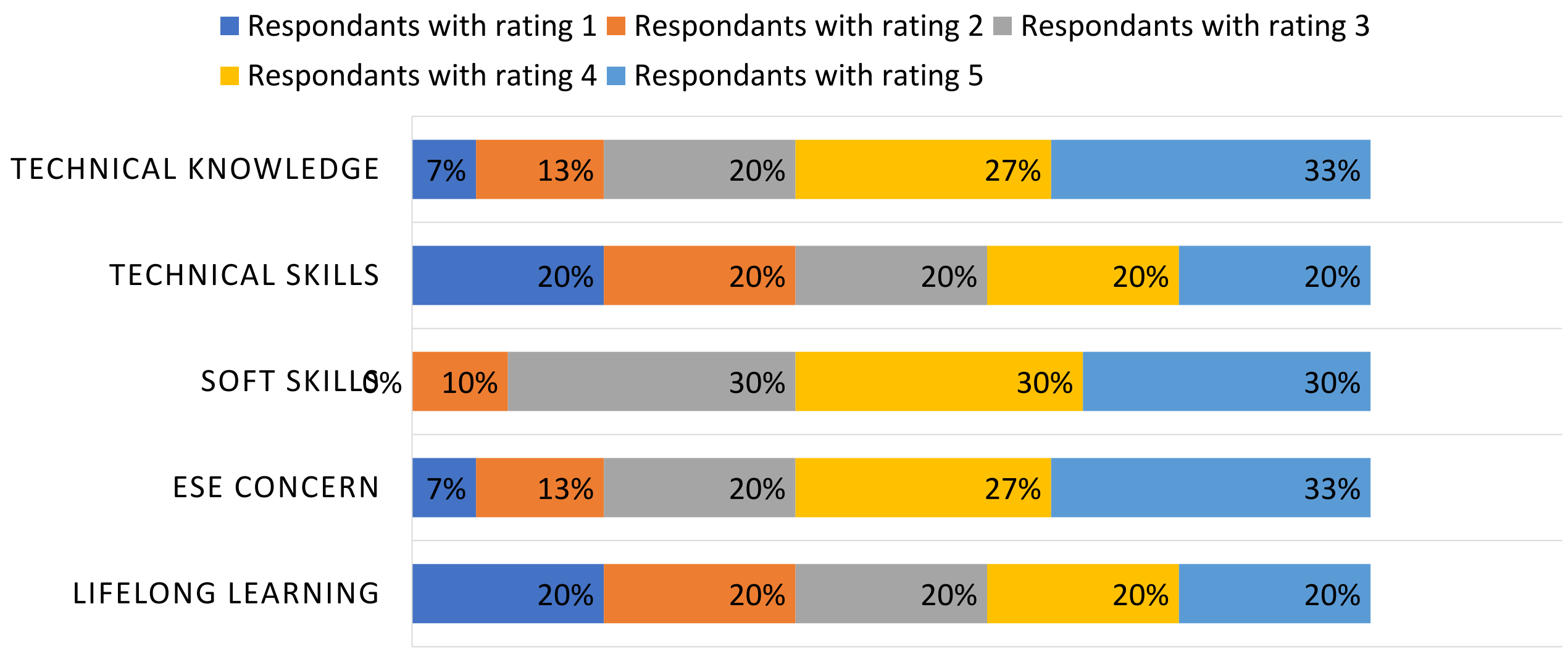
BOS: Board of Studies
IAB: Industrial Advisory Board

ASSESSMENT CYCLE:
Every 3-5 Year

EXAMPLE KPIs & ASSESSMENT TOOLS FOR PEOs

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)		KPIs	ASSESSMENT TOOLS
PEO-1	Knowledge of mathematics, natural sciences, engineering fundamentals, and textile engineering specialization	>60% employers and alumni rate PEO achievement 3 or higher on 1-5 scale.	Employer Survey; Alumni Surey
PEO-2	Skills for the investigation and analysis of complex textile engineering problems and design of their solutions	>60% employers and alumni rate PEO achievement 3 or higher on 1-5 scale.	Employer Survey; Alumni Surey
PEO-3	Skills for effective communication, use of IT tools, quality & engineering management, and working in multi-disciplinary teams	>60% employers and alumni rate PEO achievement 3 or higher on 1-5 scale.	Employer Survey; Alumni Surey
PEO-4	Behaviour of being socially and ecologically responsible, and ethical in decision making	>60% employers and alumni rate PEO achievement 3 or higher on 1-5 scale.	Employer Survey; Alumni Surey
PEO-5	Attitude of being a lifelong learner in the practical life.	>60% employers and alumni rate PEO achievement 3 or higher on 1-5 scale.	Employer Survey; Alumni Surey

EXAMPLE PEO SURVEY RESULTS



Questions...?

In the end, thanks for bearing me during the whole session.

May Allah SWT bless all of us to keep working with honest or self-less goals in mind forever. Ameen & Thanks