OBE

- Outcome Based Education focusses on Learning rather than Teaching
- A pre-requisite system for Washington Accord membership. Washington Accord is an international accreditation agreement for professional engineering degrees
- Established in 1989, signatory countries are 18 and Pakistan has become a provisional member
- Advantage is **Recognized** degree in all member states
- Why YOU should know?

Washington Accord 21 Member States

Washington Accord

Signatories have full rights of participation in the Accord; qualifications accredited or recognised by other signatories are recognised by each signatory as being substantially equivalent to accredited or recognised qualifications within its own jurisdiction.

- **Australia** - Represented by Engineers Australia (*1989*)

Memb

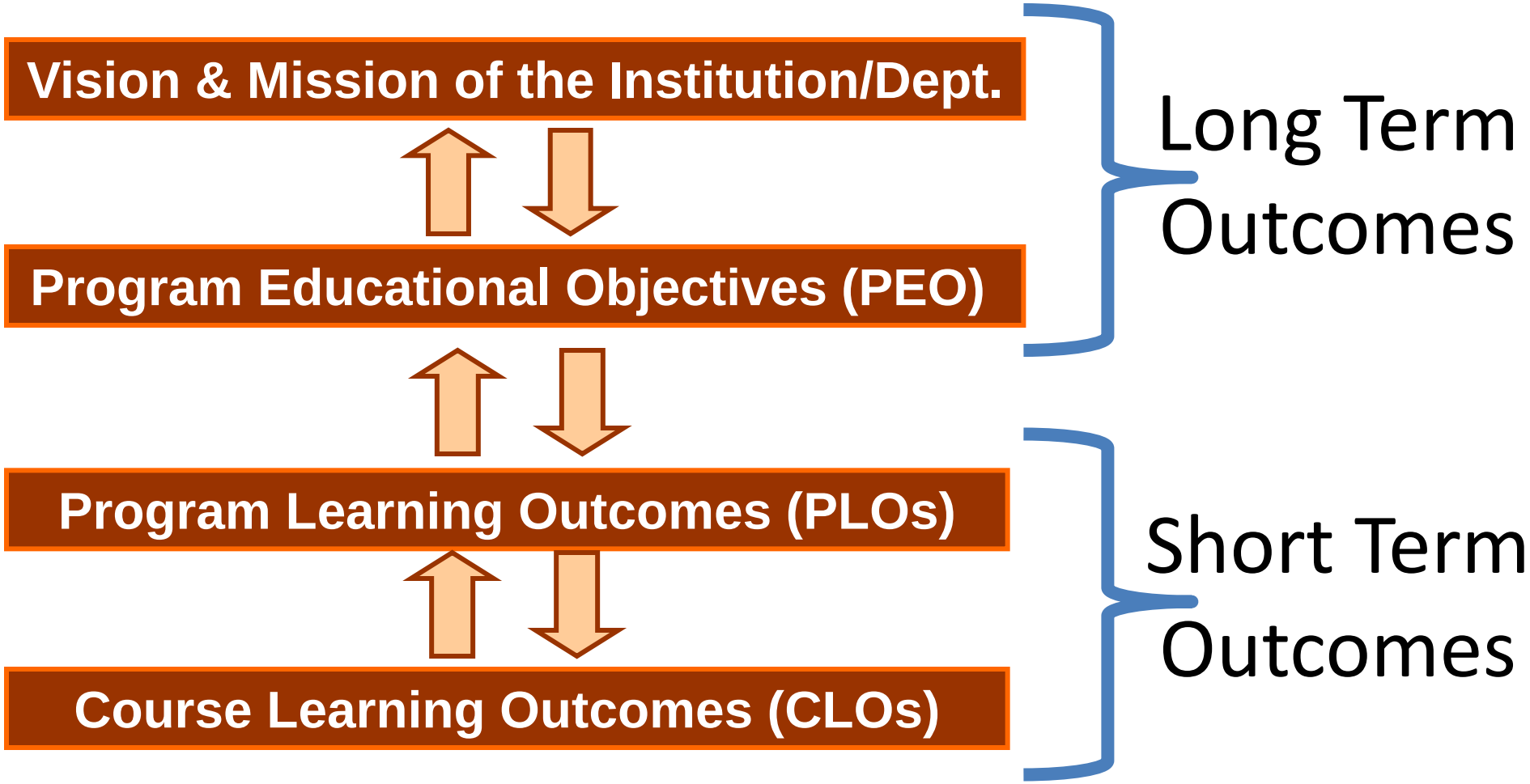
Organisation:

Password:

Organisations holding provisional status have been identified as having qualification accreditation or recognition procedures that are potentially suitable for the purposes of the Accord; those organisations are further developing those procedures with the goal of achieving signatory status in due course; qualifications accredited or recognised by organisations holding provisional status are not recognised by the signatories

- **Bangladesh** - Represented by Board of Accreditation for Engineering and Technical Education
- **Costa Rica** - Represented by Association of Engineers and Architects of Costa Rica
- **Mexico** - Represented by Consejo de Acreditación de la Enseñanza de la Ingeniería
- **Pakistan** - Represented by Pakistan Engineering Council
- **Peru** - Represented by Instituto de Calidad Y Acreditacion de Programas de Computacion, Ingeneria Y Technologia (ICACIT)
- **Philippines** - Represented by Philippine Technological Council

Hierarchy of Outcomes



Ref: Dr. Zahid Halim, OBE presentation, GIKI

An Analogy


Outcomes
Temperature
Sugar
Medicine
More tea bags
Hot
Sweet
Soothing
Alerting

CLOs

Course 1

Course 2

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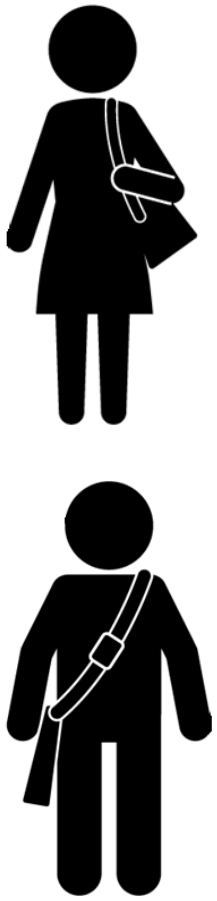
Course 44

Course 45



12 PLOs

1. Engineering Knowledge
2. Problem Analysis
3. Design/Development of Solutions
4. Investigation
5. Modern Tool Usage
6. The Engineer and Society
7. Environment & Sustainability
8. Ethics
9. Individual and Teamwork
10. Communication
11. Project Management
12. Life Long Learning

Learning Domains

Bloom's Taxonomy (BT) divides the way people learn into three domains.

1. Cognitive (knowledge-based)
2. Affective (emotive-based)
3. Psychomotor (action-based)

Learning Domain - Cognitive

- Skills in the cognitive domain revolve around knowledge, comprehension, and critical thinking on a particular topic

- Knowledge-based

Ref: Dr. Zahid Halim, OBE presentation, GIKI

Cognitive Domain Levels (BT)

C6	Creating	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions
C5	Evaluating	Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria
C4	Analyzing	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations
C3	Applying	Using acquired knowledge. Solve problems in new situations by applying acquired knowledge, facts, techniques and rules in a different way
C2	Understanding	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating the main ideas
C1	Remembering	Exhibit memory of learned materials by recalling facts, terms, basic concepts and answers

Learning Domain - Affective

- Skills in the affective domain describe the way people react emotionally and their ability to feel other living thing's pain or joy.

- Emotion-based

Ref: Dr. Zahid Halim, OBE presentation, GIKI

Affective Domain levels (BT)

A5	Characterizing
A4	Organizing
A3	Valuing
A2	Responding
A1	Receiving

Learning Domain - Psychomotor

- Skills in the psychomotor domain describe the ability to physically use a tool or instrument like a hand or a hammer.

- Action-based

Ref: Dr. Zahid Halim, OBE presentation, GIKI

Psychomotor Domain levels

P7	Origination	Creating new movement patterns to fit a particular situation or specific problem.
P6	Adaptation	Skills are well developed and the individual can modify movement patterns to fit special requirements. Examples: Responds effectively to unexpected experiences.
P5	Complex overt response	The skillful performance of motor acts that involve complex movement patterns. Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately.
P4	Mechanism	This is the intermediate stage in learning a complex skill. Examples: Use a personal computer. Repair a leaking tap. Drive a car.
P3	Guided response	The early stages in learning a complex skill that includes imitation and trial and error
P2	Set	Readiness to act. Examples: Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations
P1	Perception	The ability to use sensory cues to guide motor activity

OBE at SEECS

- Started in 2014
- Includes 5 steps
  1. Design (Course outlines, rubrics developed)
  2. Implementation
  3. Assessment (Exam ques mapped to CLOs)
  4. Analysis (Through Q-OBE software)
  5. Revision
- PEC OBE visit, 5th – 6th September 2016
- Frequent visits by PEC accreditation team , OBE model approved, followed and EE degree recognized by PEC wef BEE-4.

CLOs: EE221, DLD Course, Fall 2020

CLO	Description	BT Level	PLOs
1	**Understand** digital systems, computer arithmetic, and **Simplify** Boolean functions.	C3	1
2	**Analyze** combinational and sequential circuits.	C4	2
3	**Design** combinational and sequential circuits of moderate complexity within given hardware constraints.	C5	3
4	**Conduct** experiments as well as **analyze** and **interpret** experimental data	P4	4
5	**Construct** digital systems of moderate complexity using standard laboratory equipment and simulation tools.	P4	5
6	**Exhibit** good professional and ethical behavior. **Adhere** to lab safety rules.	A3	8
7	**Function** effectively both individually and as a member of a team	A4	9

Analysis from Fall 2015 – DLD course

CLO Attainment

CLOs	Total Students	No of Students Attained CLO above 30%	Percentage
CLO-1	87	85	97.7
CLO-2	87	82	94.25
CLO-3	87	79	90.8
CLO-4	87	74	85.06
CLO-5	87	87	100

PLO Attainment

PLOs	Total Students	No of Students Attained PLO above 40%	Percentage
PLO 1	87	83	95.4
PLO 2	87	76	87.36
PLO 3	87	61	70.11
PLO 4	87	87	100

CLO, PLO Attainment – Further Analysis

- Live demo of Q-OBE
  - CLO attainment graph
  - PLO attainment graph (course-wise)
  - PLO attainment (semester-wise)

- CQI activities

The End