

FOR DSU STUDENTS

ISSUE 04

Introduction to Outcome Based Education (OBE)

In line with Pakistan Engineering Council (PEC)
Accreditation Manual

PUBLISHED IN

March 2024





Pakistan Engineering Council (PEC)

PEC is a statutory body to regulate the engineering profession including quality of engineering education in Pakistan. Accreditation by PEC is **mandatory** for you to get HEC attested engineering degree in Pakistan.



The Washington Accord

The Washington Accord is an international accreditation agreement for professional engineering academic degrees signed between the bodies responsible for accreditation in its signatory countries. PEC became a **full-signatory** member of The Washington Accord on 21st June 2017.

What it means for you?

If your degree program is accredited on the Outcome-Based Education (OBE) system of The Washington Accord then you can easily go and study or work in any of the signatory countries * **without having to clear any competitive or equivalence examination.**



What is Outcome Based Education (OBE)?

It is NOT a separate degree program.

Outcome Based Education (OBE) demonstrates the measurable outcomes that the students are capable to apply at the end of the course. The goal of OBE is to bridge education and employability.

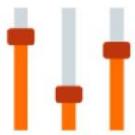
Sequence of steps in OBE are as follows;

- Identifying the outcomes of the degree program.
- The curriculum is designed based on identified outcomes.
- Classroom instructions and assessments are developed to achieve these outcomes.
- Relationship between curriculum design and employability is evaluated.

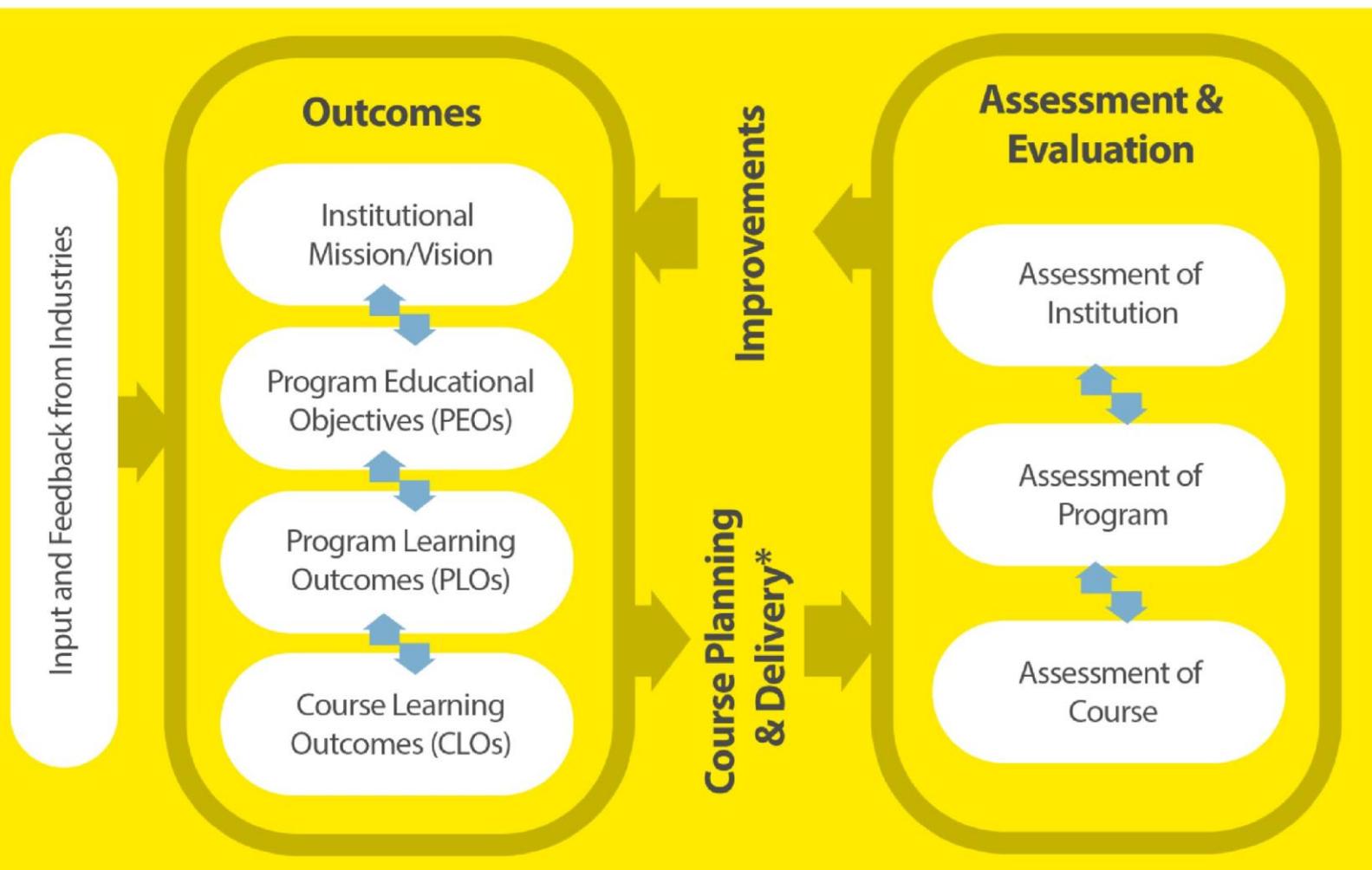


* As per PEC rules/regulations

Benefits to Students?

- Clarity**  Students will understand what is expected of them and teachers will know what they need to teach during the course.
- Flexibility**  OBE is meant to be a student-centered learning model. Teachers are meant to guide and help the students understand the material in various ways.
- Involvement**  Students are expected to do their own learning, so that they gain a full understanding of the material. Student involvement in the classroom is a key part of OBE system.
- Employment Opportunities**  The Washington Accord is an agreement that establishes global equivalence of accredited professional engineering programs being offered by the signatory countries. Accredited engineering graduates through this accord will have the freedom to work in any of the signatory countries without any equivalence examination.

The OBE Framework



* Includes Syllabi, Teaching Methods, Assessment Tools and Learning Activities



University's Mission

To achieve higher standards in teaching, learning and research for becoming a world renowned academic institution.



University's Vision

To become a globally recognized institution of higher education and research, which would extend the frontiers of knowledge and contribute significantly in nation building.

Program Educational Objectives

The graduates of Bachelor of Engineering Mechanical program, within five years after graduation, must:

- Be effective professional engineer having sound engineering knowledge and practice.
- Be responsible engineers, who exercise good ethics in their professional pursuits with due consideration to impact on society.
- Be active engineers who advance their knowledge, effectively communicate complex engineering ideas and solutions, and adapt to technological changes in the field of mechanical engineering.



Program Learning Outcomes (PLOs)

PLOs are statements that describe what learners will know and be able to do when they graduate from a program or in other words are graduate attributes common to all. The list of **12 PLOs** that are required to be attained as a **mandatory** requirement is as follows.



1. Engineering Knowledge

Ability to apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.



2. Problem Analysis

Ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.



3. Design/Development of Solutions

Ability to 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.



4. Investigation

Ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions.



5. Modern Tool Usage

Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.



6. The Engineer and Society

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 solution to complex engineering problems.



7. Environment and Sustainability

Ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.



8. Ethics

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.



9. Individual and Team Work

Ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.



10. Communication

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.



11. Project Management

An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.



12. Lifelong Learning

An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

What are Course Learning Outcomes (CLOs)?

The expected **Course Learning Outcomes (CLOs)** are derived and mapped with the **Program Learning Outcomes (PLOs)**. Collectively, the course learning objectives from all the courses in the program lead to the achievement of the program learning outcomes.



Expectation from Students in OBE

1. Being **ready to demonstrate** what they know
2. **Accepting responsibility** of what they don't know
3. Being prepared to **continue achieving** and reaching high performance
4. **Accomplish all 12 PLO's** in order to obtain your respective degree

For any questions and queries, please contact your **Student Advisors**

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