



**PRESIDENCY
UNIVERSITY**



OUTCOME BASED EDUCATION (OBE) MANUAL



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Private University Estd. in Karnataka State by Act No. 41 of 2013

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1. Introduction to OBE

Presidency University is committed to academic excellence, holistic development, social responsibility, and global awareness. To achieve this vision, the university has adopted the **Outcome-Based Education (OBE) framework**, a student-centric approach that ensures learning is measurable and aligned with industry and societal needs.

OBE emphasizes **what students should know, be able to do, and demonstrate** upon completing their program. Unlike traditional education models that focus primarily on content delivery, OBE prioritizes **student learning, skill development, and competency attainment**. This approach ensures that graduates are well-prepared to excel in their careers and contribute meaningfully to society.



2. Vision, Mission Objectives and Quality Policy of Presidency University

Vision of the University

To be a value-driven global university, excelling beyond peers, creating professionals of integrity and character and having concern and care of society

Mission of the University

- Commitment to being an Innovative and Inclusive Institution, by seeking excellence in Teaching, Research and Knowledge Transfer.
- Pursue Research and Development and its dissemination to the Community, at large.
- Create, Sustain and Apply Learning in an Inter-disciplinary Environment with consideration for Ethical, Ecological and Economic aspects of Nation Building.
- Provide Knowledge-based Technological-support and Services to the Industry, in its Growth and Development.
- Impart Globally-applicable Skill-sets to Students through flexible Course-offerings and support Industry's requirements and inculcate a spirit of new Venture-creation

Quality Policy

To establish and effectively implement a robust quality system encompassing teaching, research, consultancy, continued education, while also focusing on the core and support functions to ensure accountability to stakeholders through self-evaluation and continuous improvement



3. Outcome based education (OBE) overview

At Presidency, we are conscious of the fact that the Outcome based education (OBE) is a student-centric educational model that maps and measures students' performance at every step. The OBE model aims to maximize student learning outcomes by developing their knowledge and skills. The outcome based education system, also referred to as standard based education, has proven to be a success in helping institutions measure their learning outcomes and at the same time enabling students to develop new skills that prepare them to stand out with their global counterparts. This document gives an overview of the OBE then followed by the ways of achieving the outcome based education. The vision of the university, Program Outcomes (POs), Program Educational Objectives(PEOs) and Course Outcomes are all interconnected in a structured manner to ensure alignment between institutional goals and student learning.

Definitions

Outcome-Based Education (OBE) is a student-centric teaching and learning methodology in which the course delivery and assessment are planned to achieve stated objectives and outcomes. It focuses on measuring student performance i.e. outcomes at different levels. Some important aspects of Outcome Based Education

1. Course is defined as a theory, practical, or theory cum practical subject studied in a semester. For e.g. Corporate Strategy
2. Course Outcome (CO) Course outcomes are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Outcomes may be specified for each course based on its weightage.
3. Program is defined as the specialization or discipline of a Degree. It is the interconnected arrangement of courses, and co-curricular and extracurricular activities to accomplish predetermined objectives leading to the awarding of a degree. For e.g.: B.Des, MBA etc.
4. Program Outcomes (POs): Program outcomes are narrower statements that describe what students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.



5. Program Educational Objectives (PEOs) of a program are the statements that describe the expected achievements of graduates in their career, and also in particular, what the graduates are expected to perform and achieve during the first few years after graduation.
6. Program Specific Outcomes (PSO) are what the students should be able to do at the time of graduation with reference to a specific discipline. Usually there are two to four PSOs for a Program.
7. Graduate Attributes (GA): The graduate attributes, are exemplars of the attributes expected of a graduate from a Program.

The Benefits of OBE include:

- **Improved student learning outcomes:** The focus on outcomes helps students to see the relevance of what they are learning and to develop the skills and knowledge they need to be successful in their future careers.
- **Increased accountability:** By emphasizing the outcomes that students are expected to achieve, OBE helps to hold educators and institutions accountable for the quality of education they provide.
- **Better alignment with workforce needs:** OBE helps to ensure that students are learning the skills and knowledge that are relevant and in demand in the workforce.
- **Effective assessment:** By focusing on outcomes, OBE allows for a more meaningful and relevant assessment of student learning, which can provide valuable feedback to students and educators.
- **Personalized learning:** OBE emphasizes the individual needs and learning styles of each student, which can lead to more personalized and effective learning experiences.

4. OBE Framework of University:

At Presidency University, the implementation of OBE is structured into three key stages:

1. OBE in Curriculum Design

The foundation of OBE lies in well-defined learning objectives and measurable outcomes.

The curriculum is designed to:



- **Clearly Define Learning Outcomes:** Each program establishes **Program Educational Objectives (PEOs), Program Specific Outcomes (PSOs), Program Outcomes (POs), and Course Outcomes (COs)** to guide the teaching-learning process.
- **Ensure Industry Relevance:** Programs are designed in collaboration with industry experts to align with evolving market demands.
- **Incorporate Practice-Based Learning:** Hands-on experiences through **capstone projects, mini projects, internships, and experiential learning** bridge the gap between theory and practice.
- **Adopt a Student-Centered Approach:** The curriculum supports diverse learning styles, fostering **critical thinking, problem-solving, and creativity**.

2. OBE in Teaching and Learning (Delivery & Pedagogy)

The delivery of education at Presidency University is structured to ensure student engagement and skill development through:

- **Technology-Enabled Learning:** The Learning Management System (LMS), e-learning platforms, and digital assessments enrich the learning experience.
- **Innovative Pedagogies:** Active learning strategies such as **blended learning, flipped classrooms, and experiential learning** enhance student participation.
- **Continuous Feedback Mechanisms:** Regular student feedback informs curriculum refinement and teaching improvements.
- **Faculty Development Programs:** Continuous professional development ensures faculty are adequately equipped based on training needs analysis for effective OBE implementation.

3. OBE in Assessment and Continuous Improvement

Assessment at Presidency University is designed to measure student learning and ensure continuous enhancement of educational outcomes through:

- **Direct Assessment:** Formative (e.g., class tests, quizzes, assignments) and summative (e.g., mid-term exams, final exams, capstone projects) evaluations track student progress.
- **Indirect Assessment:** Student surveys, alumni feedback, and employer reviews provide insights into learning effectiveness.



- **Rubrics-Based Evaluation:** Well-defined rubrics ensure objective assessment of **Non-Teaching Credit Courses (NTCC)** and other experiential components.
- **Attainment Measurement:** A structured approach is used to quantify student achievement of **COs, POs, and PSOs**, ensuring continuous improvement.

Commitment to OBE Excellence

At Presidency University, OBE is not just a framework but an integral part of the academic ecosystem, ensuring that curriculum design, pedagogy, and assessment work cohesively to foster student success and societal impact.

a. Bloom's Taxonomy and Action Verbs for Course Outcomes

Bloom's taxonomy was developed to provide a common platform for teachers to exchange learning and assessment methods. Specific learning outcomes are being derived from the taxonomy, though it is most commonly used tool to assess learning on a variety of cognitive levels. Figure 1 defines each cognitive level from lower to higher-order thinking.

The goal of an educator using Bloom's taxonomy is to encourage higher-order thought in their students by building up from lower-level cognitive skills. Behavioural and cognitive learning outcomes are given to highlight how Bloom's taxonomy can be incorporated into larger-scale educational goals or guidelines. The key phrases can be used (e.g., Example Assessments) as prompts for these skills during the assessment process.

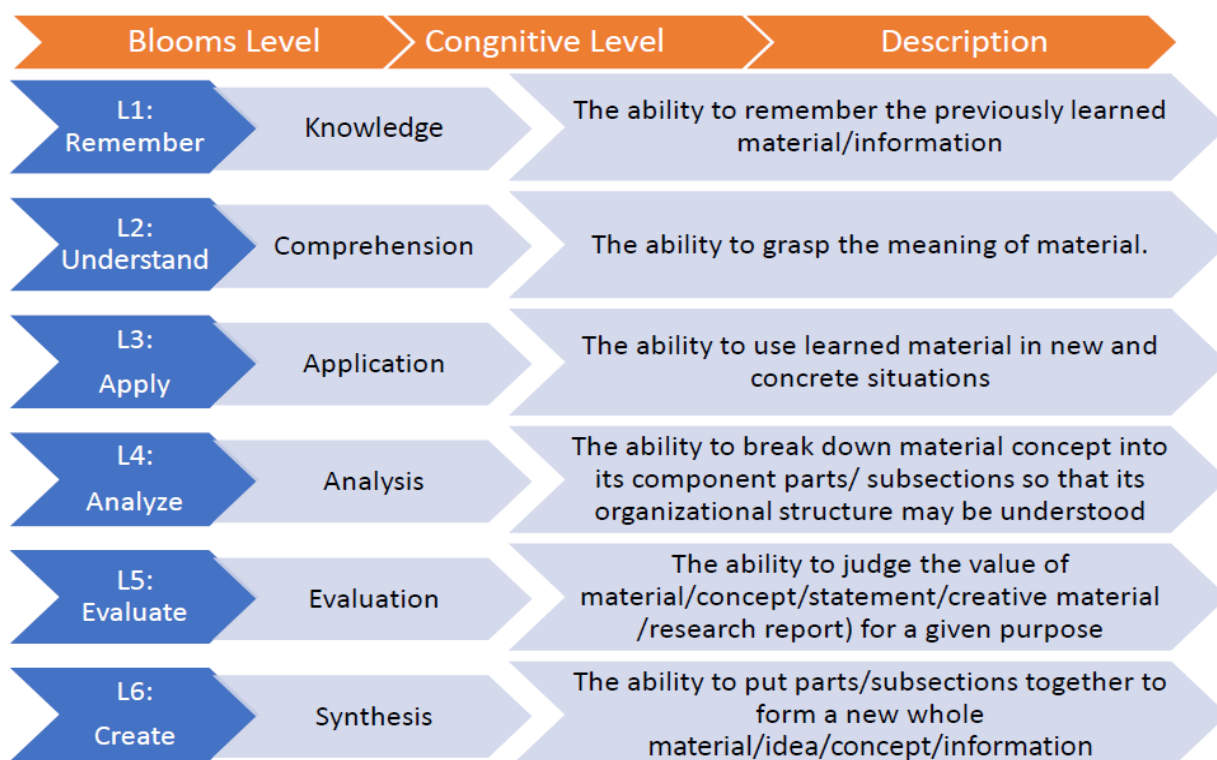


Figure 1: Revised Bloom's levels

Cognitive levels are mapped to knowledge levels (K1, K2, etc.) in Bloom's taxonomy as shown in figure 2, wherein six knowledge levels are further categorized into two cognitive process dimensions viz Low Order Thinking (LOT) and High Order Thinking (HOT). As per this process, students are assessed for fundamental concepts under LOT and advanced learning under HOT. This process helps in defining the course outcomes to what level the students are expected to develop skill sets.

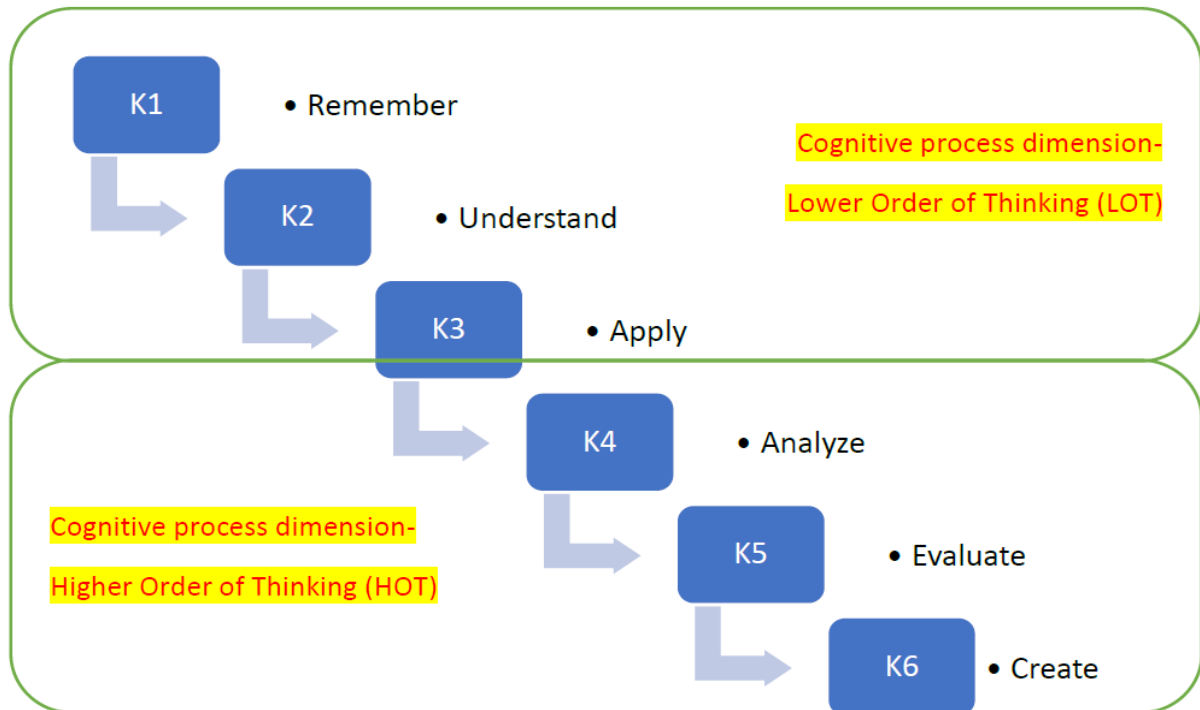


Figure 2: Knowledge Levels

Knowledge dimension refers to the mapping of concrete knowledge to abstract knowledge that span in following dimensions: factual, conceptual, procedural and metacognitive as shown in Table 1

The Knowledge Dimension			
Concrete Knowledge → Abstract knowledge			
FACTUAL	CONCEPTUAL	PROCEDURAL	METACOGNITIVE
<ul style="list-style-type: none"> • Knowledge of terminologies • Knowledge of specific details & elements 	<ul style="list-style-type: none"> • Knowledge of classifications and categories • Knowledge of principles & generalizations • Knowledge of theories, models & structures 	<ul style="list-style-type: none"> • Knowledge of subject specific skills and algorithms • Knowledge of subject specific techniques and methods • Knowledge of criteria for determining when to use appropriate procedures 	<ul style="list-style-type: none"> • Strategic Knowledge • Knowledge about cognitive task, including appropriate contextual and conditional Knowledge • Self- Knowledge

Table 1: Knowledge dimensions

Each knowledge level is represented by set of action verbs (known as Bloom action verbs) that aim to achieve respective level of knowledge. Some action verbs are shown in Table 3 for each knowledge level. Action verbs are used to define Course Outcomes (COs) and Course Objectives.



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REMEMBER:	UNDERSTAND:	APPLY:	ANALYZE:	EVALUATE:	CREATE:
Knowledge	Comprehension	Application	Analysis	Evaluation	Synthesis
Arrange	Alter	Acquire	Analyze	Appraise	Create
Cite	Classify	Apply	Appraise	Argue	Arrange
Define	Compare	Calculate	Ascertain	Assess	Assemble
Describe	Convert	Change	Associate	Attach	Collect
Duplicate	Defend	Chart	Breakdown	Choose	Combine
Identify	Describe	Choose	Calculate	Compare	Comply
Label	Discuss	Compute	Categorize	Conclude	Compose
List	Estimate	Demonstrate	Classify	Criticize	Conceive
Memorize	Explain	Discover	Compare	Critique	Construct
Match	Express	Dramatize	Conclude	Deduce	Create
Name	Extend	Draw	Contrast	Defend	Derive
Order	Generalized	Employ	Criticize	Estimate	Design
Outline	Give examples	Illustrate	Designate	Evaluate	Develop
Pronounce	Indicate	Interpret	Determine	Grade	Devise
Quote	Interpret	Manipulate	Diagnose	Judge	Expand
Recall	Locate	Modify	Diagram	Justify	Extend
Recite	Paraphrase	Operate	Differentiate	Measure	Formulate
Recognize	Recognize	Practice	Discriminate	Predict	Generalize
Record	Rephrase	Prepare	Distinguish	Prove	Generate
Repeat	Restate	Produce	Divide	Rate	Integrate



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Reproduce	Reword	Schedule	Examine	Recommend	Invent
State	Rewrite	Show	Experiment	Reframe	Modify
Tabulate	Select	Sketch	Explain	Review	Organize
	Summarize	Solve	Explore	Support	Originate
	Translate	Use	Find	Test	Plan
	Write		Infer	Value	Prepare
			Investigate	Weigh	Produce
			Outline		Project
			Point out		Rearrange
			Question		Reconstruct
			Reduce		Reorganize
			Relate		Revise
			Separate		Set up
			Specify		Synthesize
			Subdivide		
			Test		

Table 2: Action Verbs



b. POs, PSOs and COs

Program Outcomes (PO):

- POs are statements that describe what students are expected to know and be able to do upon graduating from the program.
- These relate to the skills, knowledge, analytical ability attitude and behaviours that students acquire through the program.
- These parameters are called Graduates Attributes and they vary from discipline to discipline and level to level.
- The POs essentially indicate what the students can do from subject-wise knowledge acquired by them during the program.

Program Specific Outcomes (PSO):

- These are what the students should be able to do at the time of graduation.
- The PSOs are program specific. PSOs are written by the department/school offering the program.
- There usually are two to four PSOs for a department/school.
- These are decided by the Vice Chancellor/head of the University with the help of the Director/Program Coordinators and Experts.

Course Outcomes (CO):

- Cos are narrower statements that describe what students are expected to know, and be able to do at the end of each course/subject.
- While the POs define the school program outcomes, the COs are more oriented towards the subjects and are mostly defined by the faculties consulting higher authorities.
- The COs are more like statements that relate to the skills, knowledge, and behaviour the students acquire as they go through a specific course within a

program.

- They collectively contribute to the program outcomes. They are to be mapped to the POs, and not necessarily to a single one.
- Two or more COs can be mapped to a PO and a CO can be mapped to one or more PO(s). COs are mapped to different POs based on their influence on them.

3d. Design of curriculum

All programs include Program Educational Objectives (PEOs), Program Outcomes (POs), Program Specific Outcomes (PSOs), course learning objectives (CLOs), and course outcomes (Cos).

Program Outcomes (POs), Program Specific Outcomes (POs) and Course Outcomes (COs) of all Programs and courses are be prepared in alignment with University's vision, mission and the learning requirements of the students.

Course outcomes are mapped with the Program Outcomes and aligned with Bloom's taxonomy learning levels. Course outcomes are aligned with the Course Delivery methods. Course outcomes for each course are finalized through discussions with all the course teachers.

Guidelines for writing Course Outcome Statements: Well-written course outcomes involve the following parts.

Example

• Action verbs	<u>Design</u> column splices and bases
• Subject content	Determine the <u>losses in a flow system.</u>
• Level of achievement as per BTL	Use structural analysis to create (BTL) a new design
• Modes of performing task	<u>Present seminar</u> on real life problems.

While writing COs the following questions/points must be addressed properly.

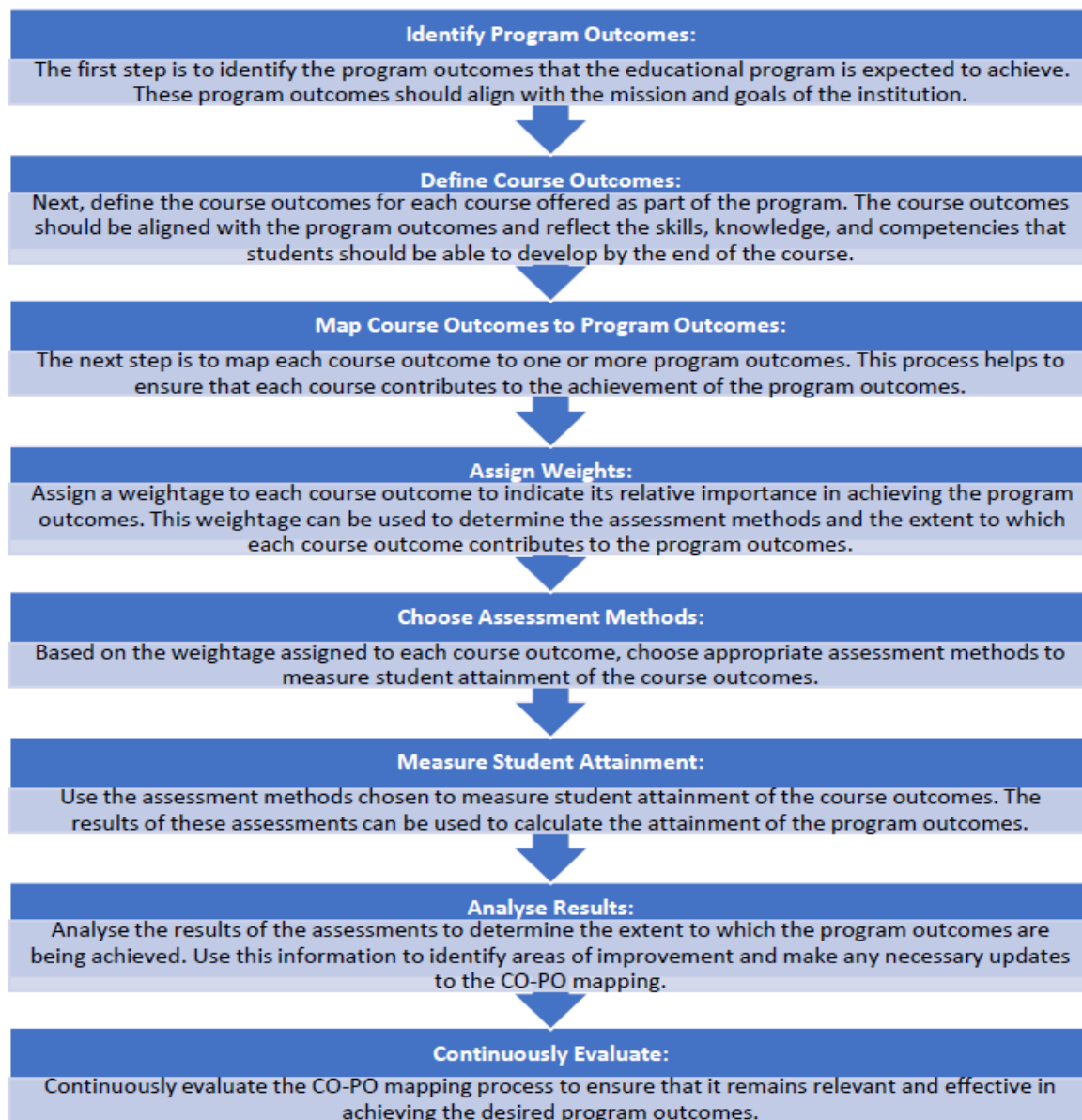
Specific	<ul style="list-style-type: none">• Is there a description of precise behavior and the situation it will be performed in? Is it concrete, detailed, focused and defined?
Measurable	<ul style="list-style-type: none">• Can the performance of the outcome be observed and measured?
Achievable	<ul style="list-style-type: none">• With a reasonable amount of efforts and application can the outcome be achieved? Are you attempting too much?
Relevant	<ul style="list-style-type: none">• Is the outcome important or worthwhile to the learner or stakeholder? Is it possible to achieve this outcome?
Time-Bound	<ul style="list-style-type: none">• Is there a time limit, rate, number, percentage or frequency clearly stated? When will this outcome be accomplished?

Note: If Laboratory/Studio is given as a separate course (with course code) then there should be separate course outcome for Laboratory/Studios.

c. CO-PO mapping

The Co-Po (course outcome-program outcome) mapping process is a crucial aspect of educational program design and assessment. It helps in aligning the course outcomes with the program outcomes and ensures that students can develop the desired skills and competencies as per the program objectives. The process helps in determining the extent to which the program outcomes are being achieved through the courses offered and helps in the continuous improvement of the program.

Process of the Course Outcome-Program Outcome Mapping:



This process ensures that their courses are aligned with the program outcomes and that students are able to develop the desired skills and competencies as per the Program Educational objectives (PEOs).

CRITERIA FOR CO-PO MAPPING JUSTIFICATION

i. Keywords

Level	Keywords Used in writing COs
No mapping (-)	Key words related with LOT and not related with course or any outcomes.
Low (1)	Part of PO is reflected through keywords/action verbs.
Medium (2)	Major part of PO is reflected through keywords/action verbs and moderate level performance is expected from student to achieve PO.
High (3)	Exact action verb of PO and critical performance expected from student to achieve PO.

ii. Critical Assessment Record for PO5 to PO12

Level	Assessment Depth
No mapping (-)	No rubric used for assessment.
Low (1)	Single rubric category used for assessment.
Medium (2)	Two rubric category used for assessment.
High (3)	Three or more rubric category used for assessment.

Sample articulation matrix showing the CO-PO mapping incorporated in the handbook

Course Outcomes	Program Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3
CO 2	3	3	3	3	2	-	-	-	-	-	-	1	3	-	3
CO 3	3	3	3	3	2	-	-	-	-	-	-	2	3	-	3
CO 4	3	3	3	2	2	-	-	-	-	-	-	1	3	3	3

d. CO-PO attainment

Define Program Educational Objectives (PEO) The Programme Educational Objectives of a program describe the expected achievements of graduates in their careers. They define what the graduates are expected to perform and achieve during the first few years after graduation. It is prepared in consultation with all stakeholders.

Identify Graduate Attributes (GA)

Graduate Attributes are a set of individually assessable outcomes that are indicative of the graduate's / postgraduate's potential to acquire competencies in a specific program.

Develop Program Outcomes/Program Specific Outcomes

Program outcomes are narrower statements that describe what students are expected



to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

Develop Course Outcomes

The course outcomes describe the knowledge & abilities developed in the students on completion of the course. The focus is on the development of abilities rather than merely content.

Target Levels for Attainment of Course Outcomes

The course outcome attainment is assessed in order to track the graduate performance against the target level of performance. The CO attainment is the tool used for continuous improvement through appropriate learning & teaching strategies of the course.

The course outcome attainment is measured or calculated in order to assess student performance with respect to abilities.

The course outcome attainment becomes the basis for Program Outcome Attainment calculation.

Target level for Attainment of Program Outcomes/Program Specific Outcome

The program outcome attainment is assessed in order to track the performance of the graduates against the target level of performance. The PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies.

The Program outcome attainment is determined based on the attainment of course outcomes for all courses in the program's regulatory curriculum.

The set target level ensures continuous improvements in the graduate's performance.

Attainment of CO

A set of performance evaluation criteria is used for the quantitative assessment of COs. Thus, the attainment of COs provides evidence of the attainment of POs and PSOs.

Course Outcome Attainment is the sum of Direct Attainment and Indirect Attainment. Direct Attainment is computed based on the marks obtained by students in the respective Assessment Tools and Indirect Attainment is computed from the Course End Survey.

Direct Attainment		
THEORY COURSES	LABORATORY COURSES	PROJECT WORK
<ul style="list-style-type: none"> • Continuous Assessment • Assignments • End term 	<ul style="list-style-type: none"> • Continuous monitoring in regular lab sessions • Internal Lab Examination • Lab Semester End Examination 	<ul style="list-style-type: none"> • Capstone Project, Internship, Project work, Studio, Dissertation, Portfolio
Indirect Attainment		
Course End Surveys		

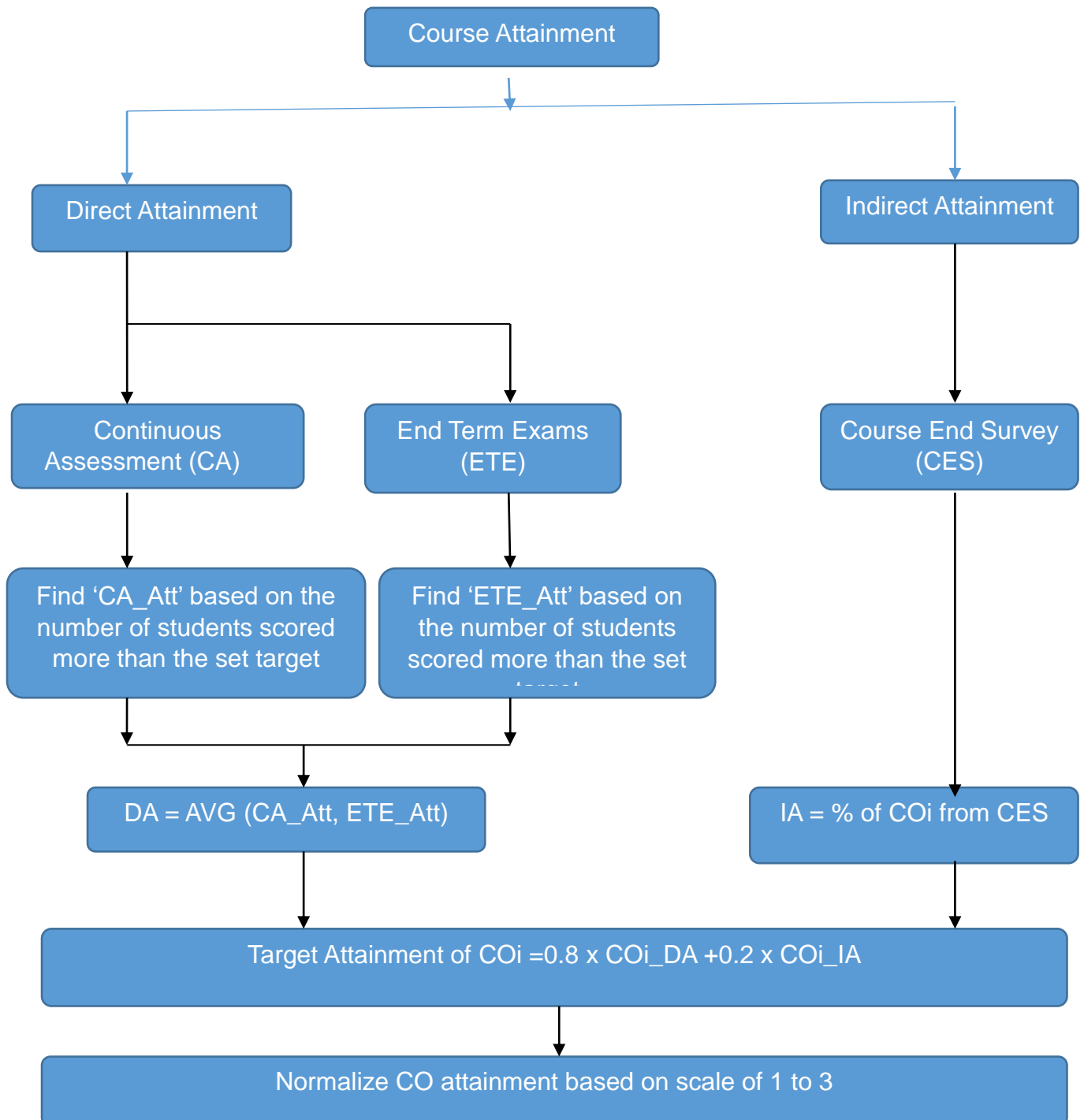


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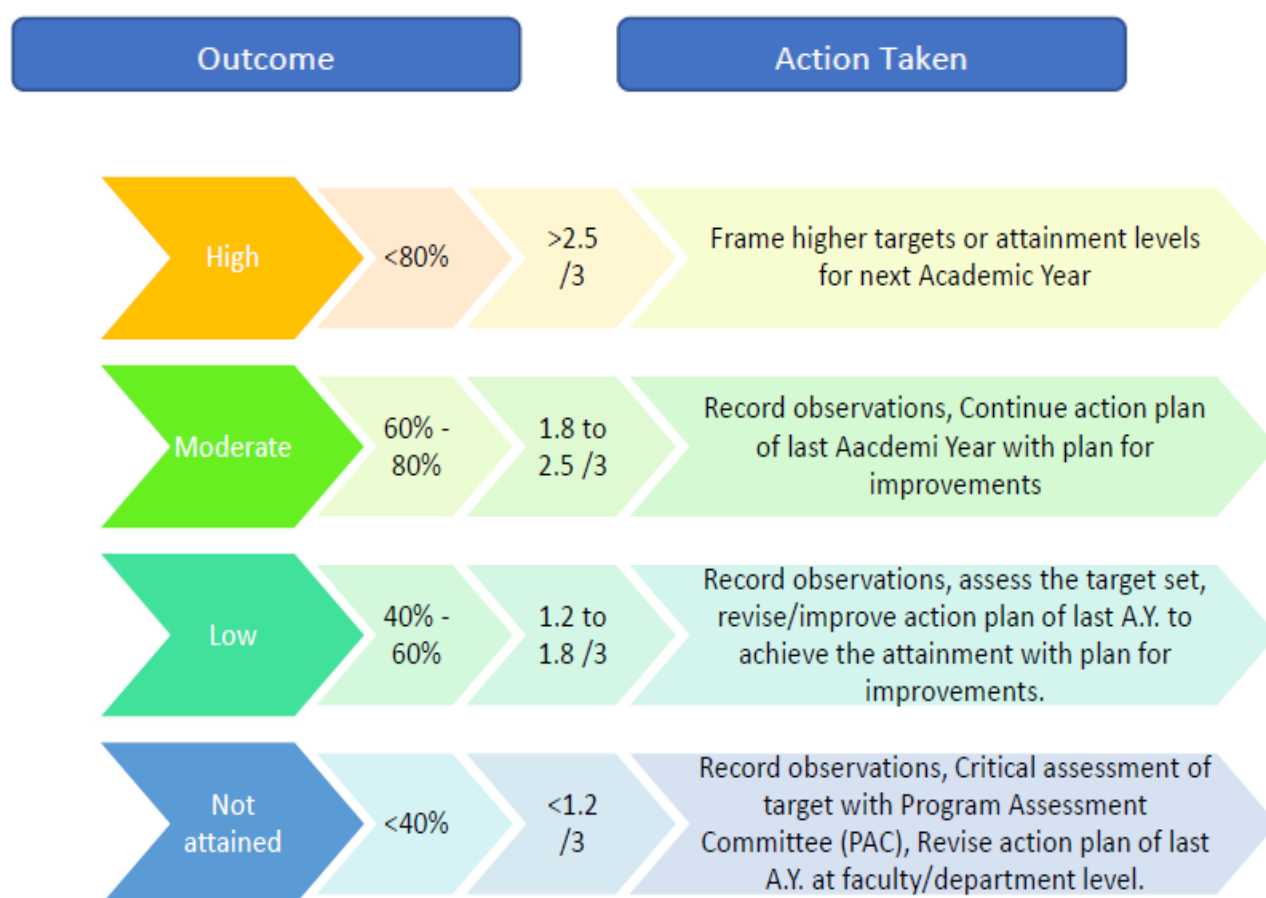
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CO-PO/PSO attainment for a course is computed as per the procedure given below:

Direct CO Attainment	<ul style="list-style-type: none">• 50% of CA Average Attainment Level• +• 50% of End Term Average Attainment Level
Indirect Attainment	<ul style="list-style-type: none">• $((\text{Level1} \times \text{No. of Students Attempted}) + (\text{Level2} \times \text{No. of Students Attempted}) + (\text{Level3} \times \text{No. of Students Attempted}))/ \text{Total No. of Students}$
Overall CO attainment in the Course	<ul style="list-style-type: none">• 80% of Direct CO Attainment+ 20% of Indirect CO Attainment



Contribution of CO in PO attainment and Continuous Improvement (Faculty Level)

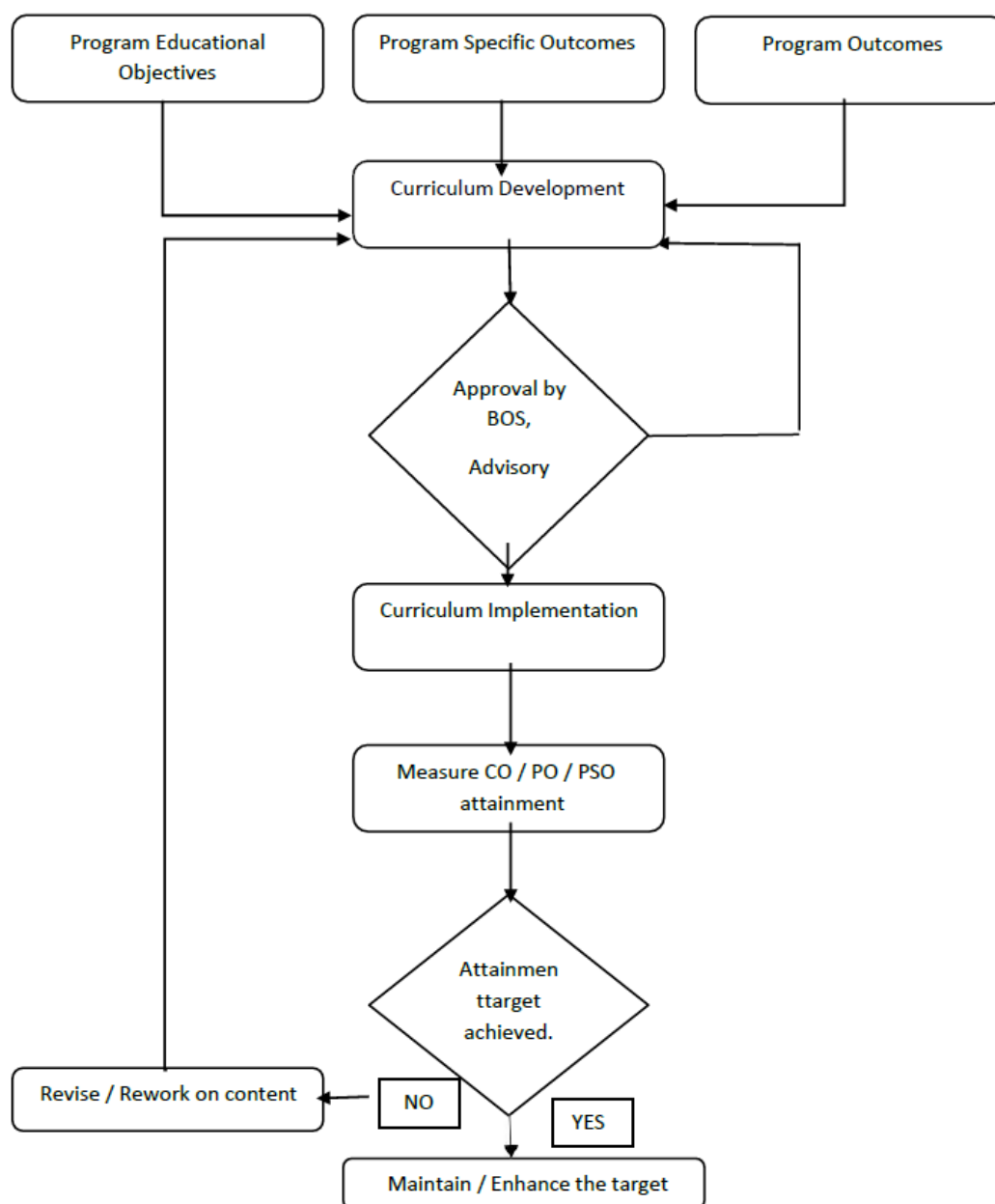




PO attainment and Continuous Improvement (Program Coordinator and Director Level)

Category	Outcome	Action Taken
Course related	PO attained highly	Include activities with High Order Thinking
	PO not attained highly	Identify concerned courses, plan for immediate improvements, guide, support and monitor its execution.
Activity related	Activities Conducted	Critical assessment, impact analysis to be done and revise as per the need for improvements.

5. Measures for continuous improvement





All PO's can be adequately addressed through the selection of core courses and their CO's. If assessment is in alignment with CO's, then the performance of the students indicates the CO attainment. These measurements provide the basis for continuous improvement in the quality of learning. The attainment at Course Level, Programme Level and Institutional Level ensures the quality assurance for the stake holders. All the attainment analysis is made to provide continuous improvement through either in course delivery, assessment and Curriculum.

Best Practices for Evaluating PEOs &POs

Evaluating Program Educational Objectives (PEOs) and Program Outcomes (POs) is an important aspect of Outcome Based Education (OBE). The evaluation process provides insights into the effectiveness of the program and helps to identify areas for improvement. Here are some best practices for evaluating PEOs and POs:

Align Evaluation with PEOs and POs: The evaluation process should be aligned with the PEOs and POs to ensure that it measures student progress towards achieving these goals. This can involve using a range of assessment methods, including exams, projects, and simulations.

Use Multiple Assessment Methods: To get a comprehensive picture of student learning, it is best to use multiple assessment methods. This can involve using a combination of exams, portfolios, projects, and simulations to assess student learning outcomes.

Engage Stakeholders: Engaging stakeholders, including faculty, administrators, students, and alumni, can provide valuable insights into the effectiveness of the program and help to identify areas for improvement. This can involve conducting



surveys, focus groups, and town hall meetings to gather feedback from stakeholders.

Conduct Regular Evaluations: Regular evaluations are important to ensure that the program is continuously improving. This can involve conducting evaluations annually or as needed to assess student learning outcomes and program effectiveness.

Use Results to Continuously Improve: The results of the evaluation process should be used to continuously improve the program. This can involve using the data to identify areas for improvement, making changes to the curriculum, and implementing new teaching strategies to support student learning.

Course Outcomes

Establishing clear course outcomes has many benefits for both students and Faculty.

Some of these benefits include:

Improved student learning: By clearly defining the expected outcomes for a course, students have a clear understanding of what they are expected to learn, which can help them focus their efforts and achieve better learning outcomes.

Increased student motivation: When students know what they are working towards, they are more likely to be motivated to engage with the course material and achieve the learning goals. **Better course design:** Developing clear course outcomes requires careful consideration of what students need to learn and how best to help them achieve that learning. This process can lead to a better-designed course that is more effective at promoting student learning.

Improved assessment: When course outcomes are clear and well-defined, it is easier for instructors to assess student learning and determine whether students are meeting the desired outcomes.



Increased accountability: With clear course outcomes, both students and faculty are held accountable for achieving the learning goals. This can help to maintain a focus on student learning and ensure that the course is meeting its objectives.

Developing effective course outcomes is an important part of creating a well-designed course.

Here are some strategies for writing and measuring effective course outcomes:

Start with the end in mind: Identify the overarching goals and objectives of the course, and consider what students should be able to know and do by the end of the course.

Write measurable outcomes: The outcomes should be specific, measurable, and achievable. Avoid using vague language such as “understand” or “be familiar with.” Instead, use action verbs such as “analyse,” “evaluate,” or “synthesize.”

Align outcomes with assessment methods: Consider how you will measure the attainment of each outcome. This could include exams, essays, projects, or presentations. Make sure that the assessment methods align with the outcomes.

Use a variety of assessment methods: Using a variety of methods can provide a more comprehensive picture of student learning. For example, you might use multiple choice exams to assess knowledge, and essays or projects to assess higher order thinking skills.

Assess student learning regularly: Regular assessment helps to keep students on track and provides opportunities for mid-course correction. It also helps to



establish a culture of assessment in the course.

Provide feedback to students: Feedback is a key component of effective assessment. It should be timely, specific, and meaningful, and it should help students understand what they have done well and where they need to improve.

Reflect and revise: After each course, reflect on the outcomes and the assessment methods used. Consider what worked well and what could be improved, and revise the outcomes and assessment methods accordingly.



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