LLOYD

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Ladder Of Success

OBE Manual

2024-25

OBE Manual 2024-25

Sl No.	Topic
1.	**Introduction to OBE**
2.	**Vision, Mission, PEOs, POs and Quality Policy of Lloyd Business School**
3.	**Outcome based education (OBE) Overview**
4.	**OBE Framework of Lloyd Business School**
	a. Bloom's Taxonomy and Action Verbs for Course Outcomes
	b. Overview of Assessment Tools and Processes
	c. CO Attainment
	d. PO attainment
5.	**Measures for Continuous Improvement**

1. INTRODUCTION TO OUTCOME-BASED EDUCATION (OBE)

Lloyd Business School is dedicated to fostering academic excellence, holistic development, industry relevance, and ethical leadership. In line with its vision to produce competent and future-ready professionals, the institution has embraced the Outcome-Based Education (OBE) framework—a learner-centric approach that focuses on achieving clearly defined and measurable learning outcomes.

OBE emphasizes what students are expected to know, do, and demonstrate by the end of their academic program. Unlike traditional, content-driven teaching models, OBE shifts the focus to student learning, skill enhancement, and the attainment of professional competencies. This ensures that graduates of Lloyd Business School are equipped with the knowledge, abilities, and values required to excel in a dynamic business environment and contribute responsibly to industry and society.

2. Vision, Mission, PEOs, Pos and Quality Policy of Lloyd Business School

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Vision:

"To be a globally recognized Centre of excellence in management education, producing resilient and globally adaptable leaders who leverage digital innovation to drive sustainable solutions, embody an entrepreneurial spirit, and enhance their employability exponentially."

Mission:

- To deliver globally benchmarked, research-driven, and practice-oriented management education that nurtures academic and professional excellence.
- To cultivate leaders who uphold ethical values and demonstrate accountability towards business, society, and the environment.
- To promote sustainable business practices and responsible decision-making that contribute to long-term societal and environmental well-being.
- To inspire and equip students with entrepreneurial spirit, creativity, and innovative thinking that drive business transformation.
- To provide broad-based knowledge and specialized skills across diverse management disciplines, ensuring graduates are career-ready and industry-relevant.
- To enhance employability by developing globally aware professionals and positioning faculty as thought leaders who shape management practices worldwide

PEOs Statements

PEO 1: To demonstrate excellence in careers by applying management knowledge, functional expertise, and analytical skills to deliver effective solutions.

PEO 2: To make fair and responsible decisions, upholding ethical standards and contributing positively to organizations and society.

PEO 3: To develop an entrepreneurial mindset, fostering innovation for sustainable ventures and organizational transformation.

PEO 4: To strengthen employability, adapting to global business trends and pursuing lifelong learning.

PEO 5: To advance sustainable practices, contributing to research and emerging as thought leaders in management.

PO Statements

PO1: Apply knowledge of management theories and practices to solve business problems.

PO2: Foster Analytical and critical thinking abilities for data-based decision making.

PO3: Ability to develop Value based Leadership ability.

PO4: Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.

PO5: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.

PO6: Develop effective communication skills, interpersonal skills, organizational skills, and ability to work in a group.

PO7: Apply ethical principles and cultivate commitment to personal and professional ethics in all aspects of business practice.

Quality Policy – Lloyd Business School

Lloyd Business School is committed to establishing and continuously strengthening a robust quality assurance system that supports excellence in teaching, research, consultancy, and continuing education. The institution ensures that all academic and administrative processes are transparent, efficient, and aligned with national and global standards. We emphasize innovation in curriculum design, pedagogy, and assessment to enhance student learning outcomes and professional readiness. A culture of continuous improvement is maintained through systematic planning, regular reviews, and evidence-based decision making. Faculty development, research engagement, and strong industry linkages form an integral part of our quality ecosystem. The institution values stakeholder satisfaction and ensures accountability through feedback mechanisms and periodic audits. We provide an inclusive, safe, and supportive learning environment that promotes ethical behavior and holistic development. Technology-enabled systems are adopted to strengthen governance, monitoring, and evaluation processes. Our long-term commitment is to nurture competent, socially responsible, and industry-ready professionals. Through collective effort and self-evaluation, we strive to uphold excellence and deliver value to all stakeholders.

3. OUTCOME-BASED EDUCATION (OBE) – OVERVIEW

At **Lloyd Business School,** we recognize that Outcome-Based Education (OBE) is an essential and strategic approach to ensuring academic excellence, employability, and holistic student development. OBE is a **student-centric educational model** that systematically maps and measures learning outcomes at every stage of a student's academic journey. The objective of the OBE model at LBS is to maximize student learning by developing the knowledge, skills, values, and professional competencies required for success in a dynamic and global business environment.

OBE enables the institution to define clear outcomes, assess learning objectively, and continuously enhance teaching and curriculum delivery. This OBE Manual provides a comprehensive overview of the model followed at Lloyd Business School along with the processes used to achieve outcome alignment and measurement. The **Vision and Mission** of the institution, **Program Outcomes (Pos), Program Educational Objectives (PEOs),** and **Course Outcomes (COs)** are systematically interconnected to ensure that student learning is fully aligned with institutional goals and industry expectations.

Definitions (Aligned to Lloyd Business School)

1. Course
A course is a theory, practical, or integrated subject offered in a trimester. Example: Corporate Strategy, Business Analytics, Supply Chain Management.

2. Course Outcome (CO)
COs specify what a learner will be able to know, do, or demonstrate after completing a particular course. Each CO is measurable and aligned with Pos.

3. Program
A program refers to an academic specialization comprising structured courses, co-curricular, and experiential learning activities leading to the award of a degree/diploma.

4. Program Outcomes (Pos)
POs are statements describing the knowledge, skills, and abilities students are expected to acquire by PGDM. At LBS, Pos align with PEOs and industry requirements.

5. Program Educational Objectives (PEOs)
PEOs describe what graduates are expected to achieve within the first few years of completing their program—career growth, ethical leadership, innovation capability, and continuous learning.

Benefits of OBE at Lloyd Business School

- **Improved Learning Outcomes:** Students clearly understand what they are expected to learn, enabling stronger academic and professional performance.
- **Higher Accountability:** Defined outcomes enhance transparency and responsibility across faculty, students, and institutional processes.
- **Workforce Alignment:** OBE ensures that students acquire competencies demanded by industry, improving employability.
- **Meaningful Assessment:** Outcome-based evaluation provides actionable feedback for students and faculty.
- **Personalized Learning:** The student-centered approach supports varied learning styles and promotes individualized learning pathways.

4. OBE FRAMEWORK AT LLOYD BUSINESS SCHOOL

The implementation of OBE at Lloyd Business School follows a structured three-stage framework to ensure outcome alignment, quality enhancement, and continuous improvement.

1. OBE in Curriculum Design

The foundation of OBE lies in defining clear learning objectives and measurable outcomes. At LBS, the curriculum is designed to:

- The implementation of OBE at Lloyd Business School follows a structured three-stage framework to ensure outcome alignment,
- Define Learning Outcomes Clearly: Each program articulates PEOs, Pos, and COs to guide curriculum planning and delivery.
- Ensure Industry Relevance: Curriculum is developed in collaboration with industry partners to align with emerging business trends and skill needs.
- Integrate Project-Based Learning: Internships, live projects, industrial visits, case studies, capstone projects, and field exposure ensure application-oriented learning.
- Adopt a Student-Centric Approach: Curriculum design recognizes diverse learner needs and promotes creativity, critical thinking, and problem-solving. quality enhancement, and continuous improvement.

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

The teaching-learning system at Lloyd Business School is designed to support outcome achievement through innovative and engaging pedagogies. Key features include:

- Technology-Enabled Learning: Use of Learning Management Systems (LMS), digital assessments, simulation tools, and e-resources.
- Innovative Pedagogies: Blended learning, flipped classrooms, case method teaching, problem-based learning, role plays, and experiential learning.
- Continuous Feedback: Regular feedback from students, faculty, and industry mentors ensures improvement in curriculum delivery.
- Faculty Development Programs: Ongoing training, certifications, research workshops, and industry sessions strengthen faculty competence for effective OBE implementation.

3. OBE in Assessment and Continuous Improvement

Assessment practices at LBS are designed to measure learning outcomes and ensure systematic improvement.

- Direct Assessment: Quizzes, assignments, presentations, mid-term exams, end-term exams, projects, and performance evaluations.
- Indirect Assessment: Program Exit Surveys, Feedback from faculty & Feedback from recruiters.
- Rubric-Based Evaluation: Transparent, objective rubrics for evaluating reports, presentations, viva, internships, and skill-based learning.
- Outcome Attainment Measurement: CO-PO attainment is systematically calculated to analyze program effectiveness and drive continuous improvement.

Commitment to OBE Excellence – Lloyd Business School

At Lloyd Business School, OBE is not merely a procedural requirement—it is an integral part of our academic philosophy. Through coherent alignment of curriculum, pedagogy, and assessment, LBS ensures that every student is empowered with the competencies, ethics, and professionalism required to excel in their career and contribute meaningfully to society.

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

Bloom's Taxonomy provides a structured framework for defining learning outcomes across various cognitive levels, ranging from basic recall to higher-order analytical and creative thinking. LBS uses Bloom's taxonomy to design measurable COs and to ensure consistency in teaching, learning, and assessment.

Educators at LBS are encouraged to promote higher-order learning by moving students from foundational understanding to critical analysis, evaluation, and innovation. The action verbs associated with Bloom's levels help in framing precise, assessable statements for COs and in designing appropriate assessments that align with desired learning levels.

b. Overview of Assessment Tools and Processes

At Lloyd Business School, the assessment of Course Outcomes (COs) follows a structured, transparent, and continuously improving framework aligned with the principles of Outcome-Based Education (OBE). The process integrates both Direct and Indirect assessment methods to ensure that student performance is measured objectively while also capturing qualitative perceptions of learning. This dual approach allows the institution to evaluate not just what students have achieved, but also how effectively teaching–learning methods have supported that achievement.

Direct Assessment focuses on measurable evidence of learning through a variety of academic tools, including end-term examinations, mid-term tests, case analyses, assignments, projects, quizzes, and presentations. Each assessment item or rubric parameter is explicitly mapped to a specific CO and its corresponding Bloom's Taxonomy level (K1–K6) to ensure proper alignment between learning objectives and evaluation. Faculty members maintain CO-mapped question papers, answer sheets, and evaluation rubrics in course files that serve as verifiable records of the process. Marks obtained in each CO-linked question are entered into a common OBE sheet, which automatically computes CO attainment levels using pre-defined institutional benchmarks.

Indirect Assessment complements this quantitative data by incorporating student perception through the Course Exit Survey (CES) conducted at the end of every trimester. The CES captures students' self-assessment of their learning on a five-point Likert scale, with each question mapped to one CO. Responses are compiled and analyzed CO-wise, and the results are forwarded to the Internal Quality Assurance Cell (IQAC) for review and integration into the final CO attainment computation.

The attainment for each CO is derived by combining 80% weightage from direct assessment and 20% from indirect assessment. The results are discussed in Academic Committee Review meetings, where faculty identify low-attainment areas and prepare Action Taken Reports to address gaps through pedagogical interventions, content redesign, or enhanced student support.

Over the years, this policy has evolved from manual, paper-based evaluation to a digitally enabled OBE system with clear mapping, traceable evidence, and analytics-driven decision-making.

c. CO Attainment Method / Process

At Lloyd Business School, the attainment of Course Outcomes (COs) is carried out through a structured, transparent, and balanced approach. The process uses both Direct Assessment Methods (objective, measurable performance) and Indirect Assessment Methods (perception-based student feedback). To ensure fairness and comprehensiveness, the overall CO attainment for each course is calculated as:

- **Direct Attainment: 80% weightage**
- **Indirect Attainment: 20% weightage**

This blended approach ensures that both tangible performance and qualitative perceptions of learning are considered.

The CO attainment method/ process is shown in below Figure:-

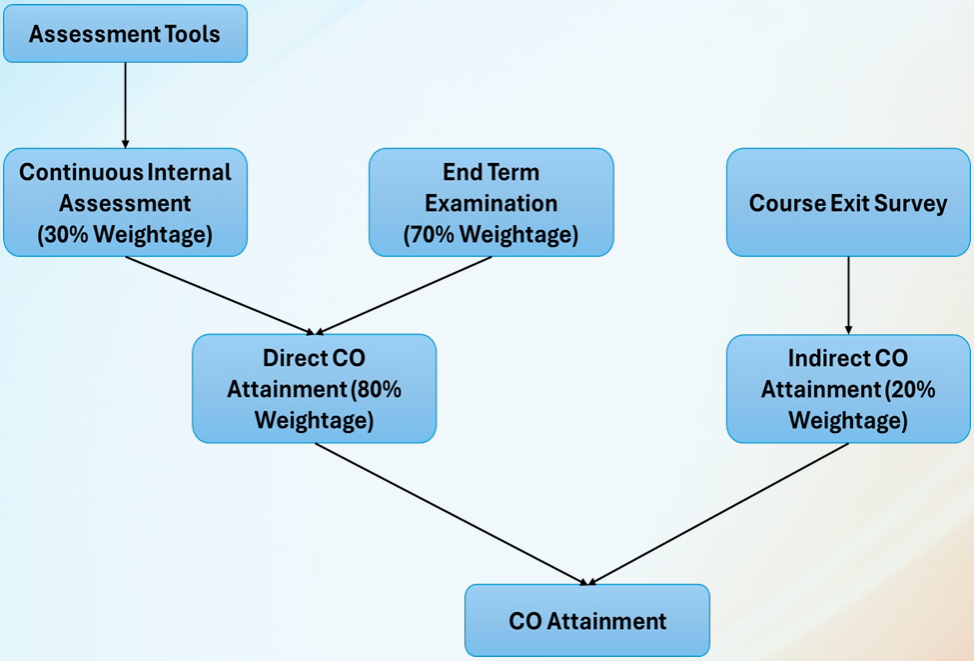

Figure 1: Attainment Method / Process

Direct Attainment of COs (80%)

Direct attainment refers to tangible, measurable evidence of student learning. Each Internal Assessment (IA) tool and each End-Term Examination question is mapped to one or more COs. Attainment for each CO is calculated separately, based on the marks obtained in all assessment items mapped to that CO.

Internal / Continuous Assessment (30% of Direct Attainment)

Internal Assessment (IA) is designed to provide continuous evaluation throughout the trimester. Faculty members select two to three tools per course depending on their learning objectives, ensuring comprehensive coverage of all COs, Pos and Taxonomy Levels.

Sl No.	Method	Description	Suggested Frequency
1.	Case Study Analysis	Students analyze managerial dilemmas, apply theory, and propose solutions	1-2 per trimester
2.	Projects (Individual/Group)	Industry-relevant problem solving; evaluates planning, teamwork, and application	Once per trimester
3.	Quizzes	Topic-wise tests (MCQs, short answers)	1-2 per trimester
4.	Presentations	Individual/group presentations to evaluate content mastery and communication skills	Once per trimester
5.	Assignments	Domain knowledge, analytical writing, and application-based tasks	1-2 per trimester
6.	Mid-Term Exam	Optional; descriptive/ numerical; CO-specific	Once per trimester

With Effect from AY 2024-25, each IA question or rubric parameter is explicitly mapped to a CO (e.g., Assignment Q2 → CO2, Quiz MCQ #4 → CO3, Project rubric "Collaboration" → CO4).

Mapping Process

The mapping process begins with the Units of the syllabus, since each unit is directly tied to a specific Course Outcome (CO). For example, Unit 1 is mapped to CO1, Unit 2 to CO2, and so on. This ensures that the intended learning outcome of each unit is clearly defined and traceable right from the start. When teachers design assessments, they no longer need to separately decide which CO a question belongs to, because every assessment item automatically carries the CO of the unit from which it is drawn.

Next, the assessment items—such as assignment questions, quiz MCQs, or project rubric parameters—are examined for the level of learning they address. This is expressed using Bloom's Taxonomy (K-Levels), which ranges from basic recall (K1: Remember) to higher-order thinking like evaluation (K5) and creation (K6). By identifying the K-Level, the institution can show whether the assessment is checking memory, understanding, application, or deeper skills such as analysis and creativity.

Finally, each CO and its associated K-Levels are mapped to the broader Program Outcomes (POs). This step connects the small, classroom-level tasks to the larger program-level competencies like domain knowledge, critical thinking, communication, or entrepreneurial spirit.

The result is a clear chain of evidence: Unit → CO → Assessment → K-Level → PO. This chain demonstrates how even a single quiz question or project rubric point contributes to the overall learning goals of the program, making the process transparent and outcome focused.

Illustration: Sample Mapping of Assessments to COs, K-levels, and POs

Assessment Tool	Mapped CO	K-Level (Bloom's Taxonomy)	Mapped POs
Assessment 1: Assignment	CO1	K1 (Remember), K2 (Understand)	PO1 (Domain Knowledge), PO6 (Communication), PO4 (Business Environment)
Assessment 2: Assignment	CO2	K1 (Remember), K2 (Understand)	PO1 (Domain Knowledge), PO2 (Critical Thinking), Po6 (Communication)
Assessment 3: Presentation	CO3	K3 (Apply), K4 (Analyze), K5 (Evaluate)	PO1 (Domain Knowledge), PO2 (Critical Thinking), PO4 (Business Environment), PO6 (Communication)
Assessment 4: Assignment	CO4	K3 (Apply), K4 (Analyze), K6 (Create)	PO1 (Domain Knowledge), PO2 (Critical Thinking), PO6 (Communication), Po7 (Ethics)
Assessment 5: Assignment	CO5	K3 (Apply), K4 (Analyze), K5 (Evaluate)	PO1 (Domain Knowledge), PO5 (Entrepreneurship), PO6 (Communication)

Each faculty member subsequently enters these CO-mapped marks into a common OBE sheet shared at the beginning of the trimester for systematic data recording and analysis.

Computation of CO Attainment Levels

For every course, attainment thresholds are predefined and approved by the Academic Committee to ensure uniformity. The levels are calculated from the percentage of students meeting the minimum performance criteria for questions mapped to each CO:

- Level 1 (Low Attainment): < 50 % students scoring ≥ 60 % marks
- Level 2 (Moderate Attainment): ≥ 50 % students scoring ≥ 60 % marks
- Level 3 (High Attainment): ≥ 70 % students scoring ≥ 60 % marks

These benchmarks are applied automatically through the OBE Sheet, which aggregates CO-wise marks from internal and end-term components and computes attainment in both percentage and level form.

Details of all Internal Assessments, including question papers, CO mapping, evaluation rubrics, and student performance records, are systematically documented in the Subject Course Files maintained by each faculty. These files serve as official evidence of assessment practices and are updated every trimester. They ensure transparency, facilitate review by academic authorities, and support the calculation of CO attainment.

Indirect Attainment of COs (20%)

Indirect attainment of Course Outcomes (COs) is measured through a Course Exit Survey (CES) administered at the end of each trimester. The CES is a structured perception-based tool that captures students' self-assessment of their learning against the intended COs of the subject. It provides valuable qualitative feedback that complements direct attainment methods.

The frequency of the survey is once per trimester, immediately after the completion of all teaching–learning and direct assessment activities. Prior to administering the CES, students are briefed about its purpose to ensure that their responses are thoughtful and reflective. Faculty members emphasize that the survey is not an evaluation of the teacher but a measure of their own perceived learning and understanding of the COs.

Parameter	Details
Tool Used	Course Exit Survey (CES)
Frequency	Once per trimester (end of course)
Administered By	Department Head
Content	5 questions (one per CO) on a 5-point Likert scale
Data Forwarding	Results compiled and forwarded to IQAC
Purpose	1. Continuous Improvement of teaching-learning 2. OBE Calculations (20% weightage in final CO attainment)

The final Course Outcome attainment for each subject is computed by combining Direct Attainment (80%) and Indirect Attainment (20%), calculated separately for every CO in the course. The results are consolidated in the departmental OBE sheet maintained every trimester. This sheet records the attainment of all COs against the set attainment levels (Level 1, 2, or 3) and serves as an authentic reference for review during academic audits and accreditation processes.

Data Compilation and Level Conversion

CES responses collected through Google Forms are exported into Excel for CO-wise analysis. For each course, the percentage of students who rated 4 ("Agree") or 5 ("Strongly Agree") on each CO statement is calculated. This percentage represents the perceived attainment of that CO as per student feedback.

The indirect attainment level is then determined automatically in the OBE sheet using the following institutional conversion logic:

% Of Students Giving Ratings 4 & 5	Indirect Attainment Level
75 % and above	Level 3 - High Attainment
60 % to 74 %	Level 2 - Moderate Attainment
Below 60 %	Level 1 - Low Attainment

These levels are then integrated into the overall Course Outcome attainment computation, following the institutional policy of 80 % Direct + 20 % Indirect weightage. The combined results are validated by the Academic Committee (ARC) and the IQAC before inclusion in trimester-wise attainment reports.

Continuous Improvement Based on CES Results

The CES feedback was not treated as an isolated perception measure but as an integral input for enhancing teaching and learning. Courses registering lower perceived attainment (less than 60% of students marking 4 or 5) were flagged for faculty review. The faculty concerned members were required to reflect on possible reasons—such as content difficulty, insufficient practice exercises, or need for supplementary material—and to include corrective measures in Action Taken Reports (ATRs).

d. PO attainment

The evaluation of Program Outcomes (POs) at Lloyd Business School is based on the systematic collection and analysis of Course Outcome (CO) attainment data, complemented by additional perception-based measures at the program level. Since CO attainment is already completed for each course, the subsequent process aggregates this data across all courses to arrive at PO attainment levels, thereby demonstrating the extent to which the program has achieved its intended graduate attributes.

Figure 2. PO Attainment Process and Measures

Assessment Tools Used for PO Attainment

The data for evaluating POs is derived from multiple direct and indirect assessment tools, conducted at planned intervals throughout the program.

a) Direct Assessment Tools

Direct measures of PO attainment are derived from the CO attainment levels of all courses. As each course has its COs mapped to POs with correlation values (1, 2, or 3), the course-level attainment results are aggregated at the program level. The following direct tools feed into CO attainment and therefore into PO attainment:

- Internal Continuous Assessments (ICA): Quizzes, assignments, case studies, presentations, and mid-term tests.
- End-Term Examinations (ETE): Standardized written exams mapped to Cos.
- Indirect CO Attainment through Course Exit Surveys
- Since these assessments have already been mapped to COs, their attainment data is transferred to the PO level.

b) Indirect PO Assessment Tools

Indirect PO attainment serves as a complementary measure to direct assessments by capturing stakeholder perceptions regarding the achievement of Program Outcomes (POs). It accounts for 20% of the overall PO attainment and provides valuable insights into how effectively the program prepares students for industry, higher studies, and lifelong learning.

The indirect attainment is derived from three structured surveys; each aligned to the seven Program Outcomes (PO1–PO7). Each survey contains seven questions, one mapped to each PO, and is rated on a 5-point Likert scale (1 = strongly disagree/poor, 5 = strongly agree/excellent). The weightages for each tool reflect their relative importance in validating PO attainment.

Recruiter Feedback Survey (40% Weightage)

The Recruiter Feedback Survey captures employers' evaluations of graduates' knowledge, skills, and professional competencies in workplace settings. Since recruiters directly assess employability and industry relevance, this feedback carries the highest weightage of 40% in indirect PO attainment.

Program Exit Survey (35% Weightage)

The Program Exit Survey collects graduating students' perceptions about how effectively the program has enabled them to achieve the seven POs. Since students have experienced the entire curriculum, their reflections provide a holistic perspective on the program's strengths and areas of improvement.

Faculty Survey (25% Weightage)

The Faculty Survey records the academic perspective of teaching faculty on how far students, as a graduating batch, have achieved the seven POs. Faculty bring longitudinal insights as they observe student performance across multiple courses and trimesters.

Overall PO Attainment

The attainment of Program Outcomes (POs) is determined by systematically integrating data from both direct assessments and indirect assessments. This integration ensures that the evaluation is comprehensive, combining objective performance data with stakeholder perceptions.

The overall attainment of Program Outcomes (POs) is derived by integrating both direct and indirect attainment data using the institutional weightages of 80% and 20% respectively. For each PO (PO1–PO7), the direct attainment score is obtained from the aggregation of Course Outcome (CO) results through the CO–PO mapping matrix. The indirect attainment score is derived from stakeholder perception surveys, namely recruiter feedback, program exit surveys, and faculty surveys. Each PO therefore has two values: a direct attainment score and an indirect attainment score.

To calculate the final PO attainment, the direct score is multiplied by 0.8 and the indirect score by 0.2. The weighted sum of these two components gives the overall attainment value for that PO. Once this calculation is completed for all seven Pos, the results provide a clear picture of program-level achievement.

Each Program Outcome (PO) is benchmarked by deriving a yearly PO average from the Course–PO matrix (across all courses) and then setting the PO target as 85% of the 2024–25 baseline value as under

- Target setting basis: For each Program Outcome (PO), the baseline is taken as the average PO attainment value across all courses in the academic year, as captured through the Course–PO mapping/attainment matrix.
- Year-level aggregation: This yields a single Yearly Average PO value (2024–25) for each PO, representing consolidated course contributions.
- Target conversion rule: The Target for each PO is then fixed at 85% of the corresponding 2024–25 Yearly Average PO value, to define a realistic benchmark for monitoring and improvement.

This methodology ensures that objective performance data (direct attainment) remains the primary driver of evaluation while still giving due importance to stakeholder perceptions (indirect attainment). The logic behind this integration is twofold: the 80% weight for direct attainment reflects its reliability as a measure of actual student performance, while the 20% weight for indirect attainment acknowledges the importance of contextual insights from recruiters, students, and faculty. By combining both, the program balances competence and perceived competence.

This integrated approach matters because it not only provides evidence-based documentation for accreditation purposes but also strengthens the institution's continuous improvement cycle. If discrepancies appear, for example, if direct attainment is high but recruiter ratings are comparatively lower—this signals a potential gap in industry readiness that can be addressed through curriculum refinement, added skill-building sessions, or enhanced experiential learning opportunities.

Steps to calculate PO Attainment

The attainment of Program Outcomes (Pos) is calculated in a structured, stepwise manner by rolling up Course Outcome (CO) attainment values to the program level. Each course contributes to PO attainment through the CO–PO mapping matrix, and stakeholder perceptions are incorporated through indirect surveys. Direct and indirect measures are then integrated using predefined weightages to arrive at the final PO attainment levels.

The calculation of Program Outcome (PO) attainment follows a structured and transparent process that ensures both academic performance (direct attainment) and stakeholder perception (indirect attainment) are integrated into the evaluation. The steps are as follows:

Step 1: CO Attainment of a Course

The first step is to take the final attainment values of each Course Outcome (CO) for a subject. These values are already calculated at course level by combining direct and indirect assessments (like exams, assignments, surveys). These become the base input for PO calculations.

CO	CO1	CO2	CO3	CO4	CO5
Final CO Attainment	3.00	3.00	2.44	2.44	2.44

Step 2: Use the CO–PO Mapping Matrix

Each CO contributes to one or more Program Outcomes (POs). This contribution is shown in the CO–PO matrix, where a mapping strength is given as 3 (strong), 2 (moderate), 1 (weak), or 0 (no mapping).

PO \ CO	CO1	CO2	CO3	CO4	CO5
PO1	3	3	3	3	2
PO2	2	3	2	2	2
PO3		1	2		1
PO4	2	2	2	3	2
PO5	1	1	1	1	3
PO6	2	2	3	3	2
PO7					1

Step 3: Calculate Direct PO for the Course

For each PO, we calculate a weighted average of the CO attainment values using their mapping strengths. COs with stronger mapping contribute more.

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Direct PO (this course)	2.68	2.69	2.58	2.64	2.60	2.63	2.44

Step 4: Add Indirect PO Attainment

Indirect PO attainment is based on surveys that capture perceptions of how well Program Outcomes (POs) are achieved. Three surveys are used:

- Recruiter Feedback (40% weightage)
- Program Exit Survey (35% weightage)
- Faculty Survey (25% weightage)

Each survey has seven questions, one for each PO. The responses are recorded on a 5-point Likert scale:

- 1 = Very Poor / Strongly Disagree
- 2 = Poor
- 3 = Average
- 4 = Good / Agree
- 5 = Excellent / Strongly Agree

Step 4a: Converting Responses into Attainment %

For each PO, we calculate the percentage of respondents who rated 4 or 5 (i.e., "Good" or "Excellent"). This shows what proportion of stakeholders believe the PO has been satisfactorily achieved.

Example (Program Exit Survey, PO1):

Total student respondents = 100

Number rating 4 or 5 = 72

Percentage = (72 ÷ 100) × 100 = 72%

Step 4b: Mapping % to Attainment Level

The percentage is then converted to attainment level using thresholds:

- Level 3 (High): ≥ 75% respondents gave 4 or 5.
- Level 2 (Moderate): 60% – 74% respondents gave 4 or 5.
- Level 1 (Low): < 60% respondents gave 4 or 5.

Example (PO1, Program Exit Survey):

72% of students rated 4 or 5 → falls in 60–74% range.

Therefore, Indirect Level for PO1 (PES) = 2

Step 4c: Applying Weights Across Surveys

Once levels are calculated for Recruiter, PES, and Faculty surveys, we apply their institutional weights.

Survey	Respondents % ≥4/5	Attainment Level	Weight	Weighted Value
Recruiter Feedback	78%	3	0.40	1.20
Program Exit Survey	72%	2	0.35	0.70
Faculty Survey	66%	2	0.25	0.50

Step 5: Direct PO Across All Courses

Each course's direct PO vector (like the table in Step 3) is compiled for the entire academic year.

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7
C101	2.68	2.69	2.58	2.64	2.60	2.63	2.44
C102	…	…	…	…	…	…	…
C103	…	…	…	…	…	…	…

Step 6: Program-Level Direct PO

For each PO, the average of its value across all mapped courses is calculated.

Formula:

Step 7: Overall PO Attainment

The final PO attainment combines Direct (80%) and Indirect (20%).

Formula:

Sample Summary Table – Final PO Attainment

PO	Direct PO (Program)	Indirect PO	Overall PO Attainment
PO1	2.68	2.40	(0.8×2.68 + 0.2×2.40) = **2.62**
PO2	2.70	2.30	(0.8×2.70 + 0.2×2.30) = **2.62**
PO3	2.55	2.10	(0.8×2.55 + 0.2×2.10) = **2.46**
PO4	2.65	2.50	(0.8×2.65 + 0.2×2.50) = **2.62**
PO5	2.60	2.40	(0.8×2.60 + 0.2×2.40) = **2.56**
PO6	2.63	2.20	(0.8×2.63 + 0.2×2.20) = **2.54**
PO7	2.44	2.30	(0.8×2.44 + 0.2×2.30) = **2.41**

Here is a **professionally rewritten, structured, and polished** version suitable for an **OBE Manual.**

No grammar issues, clear flow, and aligned with NBA expectations.

5. MEASURES FOR CONTINUOUS IMPROVEMENT

Continuous improvement is a core component of Outcome-Based Education (OBE). It ensures that the teaching–learning process, curriculum design, and assessment practices evolve based on systematic analysis of student performance and stakeholder feedback. When Course Outcomes (COs) are appropriately designed and assessments are aligned with them, the resulting attainment data provides a clear picture of student learning. This data forms the foundation for continuous improvement at the Course Level, Program Level, and Institutional Level, thereby ensuring sustained quality enhancement for all stakeholders.

A well-structured continuous improvement mechanism strengthens academic rigour, enhances student competencies, and aligns the program with the expectations of industry, accreditation bodies, and society.

5.1 Best Practices for Evaluating PEOs and POs

Evaluating Program Educational Objectives (PEOs) and Program Outcomes (POs) is essential for determining the effectiveness of a program. A systematic evaluation process enables the identification of strengths, areas for improvement, and opportunities for innovation. The following best practices support a robust and meaningful evaluation process:

■ Align Evaluation with Expected PEOs and POs

All assessment and evaluation activities must be clearly mapped to the stated PEOs and POs. This alignment ensures that the data generated accurately reflects student progress toward achieving the program's long-term goals. A range of tools—such as exams, capstone projects, internships, surveys, and simulations—can be used to measure this alignment.

■ Use Multiple and Complementary Assessment Methods

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■ Use Multiple and Complementary Assessment Methods

A single assessment method cannot capture the diverse competencies expected from graduates. Using a mix of assessment techniques—written exams, portfolios, project evaluations, presentations, practical demonstrations, and simulations—provides a comprehensive understanding of student performance and achievement of outcomes.

■ Engage All Stakeholders in the Evaluation Process

Meaningful evaluation requires input from multiple stakeholders including faculty members, students, alumni, employers, industry experts, and administrators. Surveys, focus group discussions, alumni interactions, employer feedback sessions, and departmental review meetings generate valuable insights into program effectiveness.

■ Conduct Evaluations at Regular Intervals

PEO and PO evaluations should follow a planned cycle, typically once every academic year or at the end of each program cycle. Regular evaluations ensure timely identification of gaps and accelerate the improvement process.

■ Use Evaluation Results for Continuous Improvement

The data gathered must be used to initiate improvements in teaching–learning processes, course content, assessment practices, and curriculum design. Changes may include revising CO–PO mappings, upgrading laboratory infrastructure, modifying pedagogy, or enhancing industry engagement.

5.2 Course Outcomes: Importance and Benefits

Clearly articulated Course Outcomes (COs) play a critical role in strengthening academic delivery and ensuring effective assessment. Well-defined COs provide direction to both students and faculty members, improving overall course quality. The key benefits include:

■ Improved Student Learning

Clear COs help students understand what they are expected to achieve by the end of the course. This clarity enhances focus, promotes active learning, and leads to improved academic performance.

■ Increased Student Motivation

When learning expectations are transparent, students are more motivated to engage deeply with course content. They can track their progress toward specific learning goals.

■ Better Course Design

Developing COs requires deliberate thought about essential knowledge and skills. This promotes thoughtful course planning, alignment of content, and adoption of suitable teaching methods.

■ Enhanced Assessment Quality

With well-defined outcomes, assessments can be designed more effectively to measure the intended competencies. This ensures validity, reliability, and fairness in evaluation.

■ Strengthened Accountability

Clear COs foster shared responsibility between faculty and students for achieving learning goals. This supports a culture of academic accountability and enhances transparency.

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5.3 Strategies for Writing and Measuring Effective Course Outcomes

Developing and evaluating effective COs is an iterative process that contributes strongly to continuous quality enhancement. The following strategies support robust CO design and measurement:

■ Begin with the End in Mind

Define what students should know, understand, and be able to do by the end of the course. These goals should align with broader Program Outcomes (POs) and institutional objectives.

■ Write Measurable and Action-Oriented Outcomes

COs must be specific, observable, and measurable. Avoid vague terms like "understand" or "be familiar with." Instead, use action-oriented verbs from Bloom's Taxonomy such as analyze, evaluate, design, interpret, and create.

■ Align Outcomes with Assessment Methods

Each CO must have a corresponding assessment tool—such as quizzes, assignments, lab work, presentations, or examinations—that measures the desired learning behaviour. Proper alignment ensures validity of the assessment process.

■ Use a Variety of Assessment Methods

Multiple assessment tools provide a holistic view of student competencies. Objective tests assess recall and comprehension, while essays, projects, and case analyses measure higher-order skills.

■ Assess Student Learning Regularly

Ongoing assessments enable mid-course corrections, reinforce learning, and maintain student engagement. They also create a continuous feedback loop for faculty and students.

■ Provide Timely and Constructive Feedback

Feedback helps students recognize their strengths and areas for improvement. It should be specific, actionable, and provided within a reasonable timeframe to support better learning outcomes.

■ Reflect and Revise Based on Evidence

After each course cycle, faculty should review attainment data, feedback, and teaching practices. Based on this reflection, COs, teaching strategies, and assessment methods may be revised to enhance course effectiveness.

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