St. JOSEPH'S
COLLEGE OF PHARMACY
INTERNAL QUALITY ASSURANCE CELL

SJCP

OBE MANUAL

St. Joseph's College of Pharmacy
Dharmagiri College Campus, Cherthala-688 524, Kerala, India

SJCP- OBE Manual

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ST. JOSEPH'S COLLEGE OF PHARMACY, CHERTHALA
Outcome Based Education (OBE) Manual
(Important Guidelines)

INDEX

1. OBE INTRODUCTION

Outcome Based Education (OBE) is an educational model that forms the base of a quality education system. There is no single specified style of teaching or assessment in OBE. All educational activities carried out in OBE should help the students to achieve the set goals. The faculty may adapt the role of instructor, trainer, facilitator, and/or mentor, based on the outcomes targeted.

OBE enhances the traditional methods and focuses on what the Institute provides to students. It shows the success by making or demonstrating outcomes using statements "able to do" in favor of students. OBE provides clear standards for observable and measurable outcomes.

Why OBE?

- International recognition and global employment opportunities.
- More employable and innovative graduates with professional and soft skills, social responsibility and ethics.
- Better visibility and reputation of the technical institution among stakeholders.
- Improving the commitment and involvement of all the stakeholders.
- Enabling graduates to excel in their profession and accomplish greater heights in their careers.
- Preparing graduates for the leadership positions and challenging them and making them aware of the opportunities in the technology development.

Benefits of OBE

- **Clarity:** The focus on outcome creates · a clear expectation of what needs to be accomplished by the end of the course.
- **Flexibility:** With a clear sense of what needs to be accomplished, instructors will be able to structure their lessons around the students' needs.
- **Comparison:** OBE can be compared across the individual, class, batch, program and institute levels.
- **Involvement:** Students are expected to do their own learning. Increased student involvement allows them to feel responsible for their own learning, and they should learn more through this individual learning.

2. VISION & MISSION

I. Vision

Inspired by Jesus Christ the Divine Healer, Medical Sisters of St. Joseph (MSJ) is deeply committed to mould quality professionals with character and competence to touch the humanity with a compassionate heart and bring about wholeness.

II. Mission

As catholic health care providers deep rooted in gospel values, MSJ Educational mission aims at striving to continue the healing mission of Jesus Christ through creating committed, compassionate, skillful and integrated professionals who are responsible to build up a healthy family, society and nation.

III. Our Core Values

SJCP

We stand for
S- Service
J- Justice
C- Compassion
P- Proficiency

IV. Our Motto

Love Serves

OBE and Accreditation

From 13th June 2014, India has become the permanent signatory member of the Washington Accord. Implementation of OBE in higher technical education also started in India. The National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) are the autonomous bodies for promoting global quality standards for technical education in India. NBA has started accrediting only the programs running with OBE from 2013.

The National Board of Accreditation mandates establishing a culture of outcome based education in institutions that offer Engineering, Pharmacy, Management program. Reports of outcome analysis help to find gaps and carryout continuous improvements in the education system of an Institute, which is very essential.

3. Common Programme Outcomes

PO 1: Pharmacy Knowledge- Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

PO 2: Planning Abilities- Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

PO 3: Problem analysis- Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

PO 4: Modern tool usage- Learn, select, and apply appropriate methods a O3: Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply systematically information and shall make defensible decisions.

PO 5: Leadership skills- Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

PO 6: Professional Identity- Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees.

PO 7: Pharmaceutical Ethics- Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

PO 8: Communication- Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions

PO 9: The Pharmacist and society- Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.

PO 10: Environment and sustainability- Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 11: Life-long 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. Self assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis

*** Apart from this, there may be Course sepcific POs too for UG, PG courses.*

4. OBE FRAMEWORK OF THE COLLEGE

The adoption of OBE framework of the institute is shown below:

I. Before Start of Semester

- Competency Matrix
- Subject Preference form
- Subject Allotment by HoD

  (Based on Competency)
- Subject confirmation by faculty
- Curriculum, Lesson Plan, Course file, Authentication by HoD

II. During Semester

- Verification of Course file/Lesson plan
- Approve & allow to teach
- Identifying student competency & action taken
- Execution of all other activities

III. Till End of Semester

- Implementation & Verification in classrooms and labs
- If any difficulty faced, Resolve with Subject Expert/Program Coordinator/HoD
- Assessment and Evaluation, CO-PO attainments & analysis
- Submission of Analysis to Program Coordinator/HoD

5. REVISED BLOOM'S TAXONOMY (BT)

Bloom's taxonomy is considered as the global language for education. Bloom's Taxonomy is frequently used by teachers in writing the course outcomes as it provides a readymade structure and list of action verbs. A summary of Anderson and Krathwohl's revised version of Bloom's taxonomy of critical thinking is provided in below Figure 1:

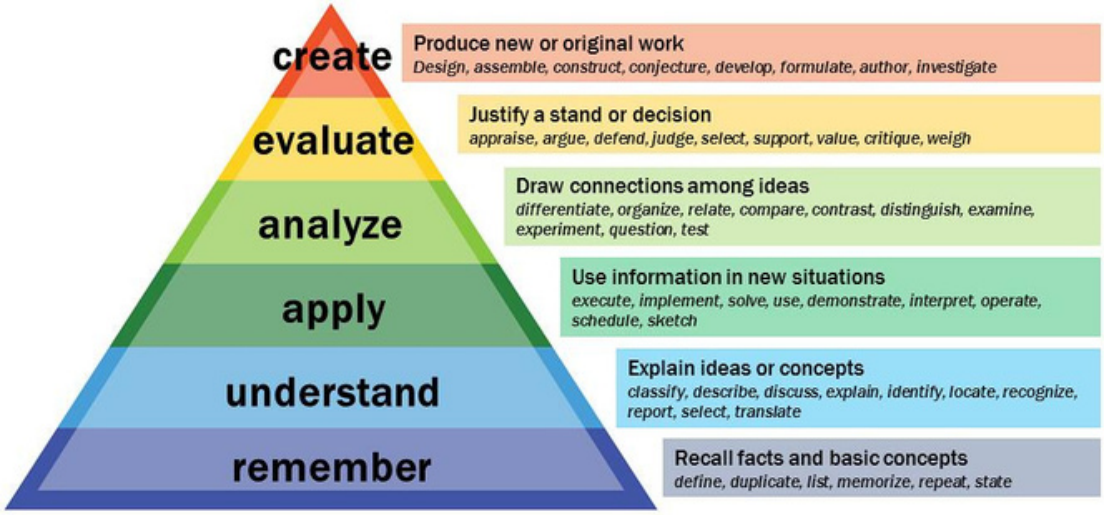


Figure 1: Revised version of Bloom's taxonomy

REVISED BLOOM'S TAXONOMY (BT)

Definitions of the different levels of thinking skills in Bloom's taxonomy

1. Remember: Recalling relevant terminology, specific facts, or different procedures related to information and/or course topics. At this level, a student can remember something, but may not really understand it.

2. Understand: The ability to grasp the meaning of information (facts, definitions, concepts, etc.) that has been presented.

3. Apply: Being able to use previously learned information in different situations or in problem solving.

4. Analyze: The ability to break information down into its component parts. Analysis also refers to the process of examining information in order to make conclusions regarding cause and effect, interpreting motives, making inferences, or finding evidence to support statements/arguments.

5. Evaluate: Being able to judge the value of information and/or sources of information based on personal values or opinions.

6. Create: The ability to creatively or uniquely apply prior knowledge and/or skills to produce new and original thoughts, ideas, processes, etc. At this level, students are involved in creating their own thoughts and ideas.

REVISED BLOOM'S TAXONOMY (BT)

The cognitive process dimensions- categories					
Lower Order of Thinking (LOT)			Higher Order of Thinking (HOT)		
L1: REMEMBER	L2: UNDERSTAND	L3: APPLY	L4: ANALYSE	L5: EVALUATE	L6: CREATE
• Recognizing (identifying) • Recalling (retrieving)	• Interpreting • Illustrating • Classifying • Summarizing • Inferring (concluding) • Comparing • Explaining	• Executing • Implementing	• Differentiating • Organizing • Attributing	• Checking (coordinating, detecting, testing, monitoring) • Critiquing (judging)	• Planning • Generating • Producing (constructing)

The Knowledge Dimension			
Concrete Knowledge → Abstract knowledge			
FACTUAL	CONCEPTUAL	PROCEDURAL	METACOGNITIVE
• Knowledge of terminologies • Knowledge of specific details & elements	• Knowledge of classifications and categories • Knowledge of principles & generalizations • Knowledge of theories, models & structures	• Knowledge of subject specific skills and algorithms • Knowledge of subject specific techniques and methods • Knowledge of criteria for determining when to use appropriate procedures	• Strategic Knowledge • Knowledge about cognitive task, including appropriate contextual and conditional Knowledge • Self- Knowledge

6. ACTION VERBS FOR COURSE OUTCOMES

List of Action Words Related to Critical Thinking Skills

Here is a list of action words that can be used when creating the expected student learning outcomes related to critical thinking skills in a course. These terms are organized according to the different levels of higher-order thinking skills contained in Anderson and Krathwohl's (2001) revised version of Bloom's taxonomy.

Here is the revised Bloom's document with action verbs, which we frequently refer to while writing Course Outcomes (COs) for our courses.

Sample Action Verbs for Course Outcomes (COs)

S. No.	BLOOM'S LEVEL	COGNITIVE LEVEL	ACTION VERBS
Lower Order of Thinking (LOT)			
1	**L1: REMEMBER**	**Knowledge**	Arrange Cite Define Describe Duplicate Identify Label List Memorize Match Name Order Outline Pronounce Quote Recall Recite Recognize Record Repeat Reproduce State Tabulate
2	**L2: UNDERSTAND**	**Comprehension**	Alter Classify Compare Convert Defend

S. No.	BLOOM'S LEVEL	COGNITIVE LEVEL	ACTION VERBS
			Describe Discuss Estimate Explain Express Extend Generalized Give examples Indicate Interpret Locate Paraphrase Recognize Rephrase Restate Reword Rewrite Select Summarize Translate Write
3	**L3: APPLY**	**Application**	Acquire Apply Calculate Change Chart Choose Compute Demonstrate Discover Dramatize Draw Employ Illustrate Interpret Manipulate Modify Operate Practice Prepare Produce Schedule Show Sketch Solve Use

S. No.	BLOOM'S LEVEL	COGNITIVE LEVEL	ACTION VERBS
Higher Order of Thinking (HOT)			
4	**L4: ANALYZE**	**Analysis**	Analyze Appraise Ascertain Associate Breakdown Calculate Categorize Classify Compare Conclude Contrast Criticize Designate Determine Diagnose Diagram Differentiate Discriminate Distinguish Divide Examine Experiment Explain Explore Find Infer Investigate Outline Point out Question Reduce Relate Separate Specify Subdivide Test
5	**L5: EVALUATE**	**Evaluation**	Appraise Argue Assess Attach Choose Compare Conclude Criticize

S. No.	BLOOM'S LEVEL	COGNITIVE LEVEL	ACTION VERBS
			Critique Deduce Defend Estimate Evaluate Grade Judge Justify Measure Predict Prove Rate Recommend Reframe Review Support Test Value Weigh
6	**L6: CREATE**	**Synthesis**	Create Arrange Assemble Collect Combine Comply Compose Conceive Construct Create Derive Design Develop Devise Expand Extend Formulate Generalize Generate Integrate Invent Modify Organize Originate Plan Prepare Produce

S. No.	BLOOM'S LEVEL	COGNITIVE LEVEL	ACTION VERBS
			Project Rearrange Reconstruct Reorganize Revise Set up Synthesize

Illustration (use of action verb w.r.t knowledge dimension and order of thinking):

BLOOM'S LEVEL/ Use of Action Verbs	Factual	Conceptual	Procedural	Metacognitive
L1: REMEMBER	**List** properties of Soil.	**Recognize** characteristic of material.	**Explain** working of pump.	**Identify** strategies for report writing.
L2: UNDERSTAND	**Summarize** features of a new product.	**Classify** adhesives by toxicity.	**Explain** assembly instructions.	**Predict** the behaviour of member.
L3: APPLY	**Respond** to frequently asked questions.	**Provide** advice to team members.	**Carry** out pH tests of water samples.	**Use** modern techniques to get solution.
L4: ANALYSE	**Explain** the selection of tool/ activity.	**Differentiate** Lower Order of Thinking (LOT) and Higher Order of Thinking (HOT).	**Integrate** compliance with regulations.	**Assess** the project work.
L5: EVALUATE	**Select** the appropriate tool.	**Determine** relevance of results.	**Judge** efficiency of sampling techniques.	**Reflect** on one's progress.
L6: CREATE	**Generate** a log of daily activities.	**Assemble** a team of experts.	**Design** efficient project workflow.	**Create** a learning portfolio.

7. GUIDELINES FOR WRITING COURSE OUTCOME STATEMENTS

Well-written course outcomes involve the following parts:

- Action verbs
- Subject content
- Level of achievement as per BTL
- Modes of performing task

Illustration:

Students are able to

- Design column splices and bases. → Action verb (underlined)
- Determine the losses in a flow system. → Subject content
- Use structural analysis software to a competent Level. → Level of achievement
- Present seminar on real life problems. → Modes of performing task with action verb (underlined)

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

Specific	Is there a description of precise behavior and the situation it will be performed in? Is it concrete, detailed, focused and defined?
Measurable	Can the performance of the outcome be observed and measured?
Achievable	With a reasonable amount of efforts and application can the outcome be achieved? Are you attempting too much?
Relevant	Is the outcome important or worthwhile to the learner or stakeholder? Is it possible to achieve this outcome?
Time-Bound	Is there a time limit, rate, number, percentage or frequency clearly stated? When will this outcome be accomplished?

8. QUALITY OF COURSE OUTCOMES

Guidelines/Checklist for COs:

Number of COs	4 to 6
CO Essentials	Action Verb, Subject Content, Level of Achievement, Modes of Performing task (If Applicable)
Based on BTL	Understand, Remember, Apply, Analyse, Evaluate, Create
Number of BTL Considered in one course	Minimum 3
Technical Content/ point of curriculum	All curriculum contents are covered
Curriculum gap	Additional CO for gap identified/filling. Adds more weightage

9. CO-PO MAPPING GUIDELINES

CONSIDER ANY TWO MINIMUM CRITERIA FOR CO-PO MAPPING JUSTIFICATION:

A) Contact Hours: Lectures, Tutorials and Practicals

Level	Contact Hours in Percentage (including Lecture, Tutorial & Practical)
No mapping (-)	< 5%
Low (1)	5- 15%
Medium (2)	15- 25%
High (3)	>25%

Description:

Number of Lectures = 3per week x 16 weeks = 48 Hours

Tutorial = 1Hr x 16 Weeks = 16 Hours

Practical = 2Hr x 16 Week = 32 Hours

Total Hrs = 48+16+32 = 96 Hrs

Example: Let, CO1 related points are engaged in 10 Lectures + 1 Tutorial and 2 Practical Hours

Then contact hours = 10+1+2x2 = 15 hours

Therefore, contact hours in percentage = (15/96) x 100 = 15.65 %. Medium mapping (2)

B) Number of Assessment Tools used

Level	Assessment tools used to assess the CO
No mapping (-)	0
Low (1)	1 or 2
Medium (2)	3
High (3)	4 or more

Assessment tools are in place for computing Direct Attainment of Theory Courses, Laboratory Courses, Projects and Seminar Courses:

Theory Courses

- Class Tests
- Slip Tests
- Semester End Examination

Lab Courses

- Continuous monitoring in regular lab sessions (Lab Courses)
- Internal Lab Examination
- Lab Semester End Examination

Projects

- Mini Projects
- Major Project CIE
- Major Project SEE

Seminars

- Project Seminar
- Technical Seminar

Assessment tools used for Indirect Attainment:

- Course End Surveys

Every CO must be correlated with each PO and appropriate mapping may be selected.

C) 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.

D) 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.

Illustration:

Category No.	Rubric Category	Level of Performance			
		4	3	2	1
1	**Group Leader**	Seeks opportunities to lead; while leading is attentive to each member	Will take lead if group insists; not good at being attentive to each member.	Resists taking on leadership role; while leading allows uneven contributions.	Never shows Up.
2	**Contribution**	Always contributes; quality of contributions is exceptional.	Sometimes contributes; quality of contributions is fair.	Rarely contributes; contributions are often peripheral or irrelevant; frequently misses team sessions.	Never shows up and never contributes.
3	**Cooperation**	Always Cooperative with all members, support good initiatives.	Cooperative with members, but sometimes argue.	Cooperative with few members, and argue most of time.	Non cooperative.

E) Assessment Type

Level	Assessment Depth
No mapping (-)	Test items (1) OR Nil
Low (1)	Test items (2) OR Assessment item (1)
Medium (2)	Test items (2) + Assessment item (1) OR Assessment item (2)
High (3)	Test items (2) + Assessment item (2) and More

Test Item:

- Class Tests
- Slip Tests
- Semester End Examination

Assessment Items:

- Quizzes
- Assignment problems
- Simulation
- Laboratory experiments
- Project, field work and report presentation
- Tutorials, activities & etc.

F) Any other criteria with proper justifiable document is acceptable.

10. ATTAINMENT OF COURSE OUTCOMES

In the Outcome Based Education (OBE), assessment is done through following process.

CO Assessment Processes

Assessment tools are categorized into two methods to assess the course outcomes:

- Direct methods
- Indirect methods

Direct methods display the student's knowledge and skills from their performance in the continuous internal assessment examinations, end semester examinations, seminars, and class room assignments etc.

Indirect methods such as students exit survey are reflecting the students' performance. They assess the opinions about the graduates knowledge or skills.

Direct Assessment Methods		
Sl. No.	Direct Assessment	Method Description
1.	Internal Assessment for Theory Examinations	Two internal assessment examinations are conducted for continuous assessment of the student's performance
2.	Internal Assessment for Practical Examinations	In laboratory course, the internal assessment marks shall be based on the laboratory records, viva voce and two practical internal examinations.
3.	End Semester Examinations (Theory and Practical)	Once in a semester, end semester examinations are conducted at the end of each semester.
4.	Practice school	In semester VII, all students shall undergo practice school for a period of 150 hours and submit a report which will be evaluated by the subject experts at college level.
5.	Project work	In semester VIII, all students shall undertake a project under the supervision of a teacher and submit a report/dissertation book.
Indirect Assessment Methods		
Sl. No.	Indirect Assessment	Method Description
1.	Programme Exit Survey	Information is collected from the students about program satisfaction and service offered by the college. It was carried out for all the students in the final semester at the end of the program to evaluate how far POs and PSOs were met with.

		Relevant questionnaire was prepared and rated on a three point scale for the exit survey.
2.	Alumni Survey	Collect variety of information about program satisfaction and service offered by the college
3.	Employer's Survey	Survey is conducted during the placement officer visit to industry & during employer visit to the campus for campus interviews information about the graduates' skills, capabilities and opportunities

Internal Assessment/ sessional Examinations, End semester Examinations and Evaluation Process:

For theory courses out of 100 marks, the maximum marks for internal Assessment examination is fixed as 25(Two Theory sessional exams are conducted for 30 marks, then reduced to 15 and computed for 25 marks by adding continuous mode assessment marks out of 10 which includes student-teacher interaction, attendance and academic activities such as quiz, assignment, seminar etc.) and End Semester Examination carries 75 marks.

For laboratory courses out of 50 marks, the maximum marks for internal Assessment examination is fixed as 15(Two practical sessional exams are conducted for 40 marks, then reduced to 10 and computed for 15 marks by adding continuous mode assessment marks out of 5 which includes attendance, practical records, regular viva voce etc.) and End Semester Examination carries 35 marks.

For Practice school in the semester VII out of 150 marks, the maximum marks for internal continuous mode assessment is 25 and end semester examination carries 125 marks.

Project work in the semester VIII carries 150 marks (75 marks for dissertation book and 75 marks for presentation).

Table: Letter grade and grade points equivalent to percentage of marks and performances

Percentage of marks obtained	Letter grade	Grade point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail

Absent	AB	0	Fail

Evaluation of marks from both Internal and External Examinations

Batch	Internal assessment examinations	End semester examinations	Total marks
Theory courses			
2018-2022	25	75	100
Practical courses			
2018-2022	15	35	50

Measurement of course attainment levels for Internal Assessment and End semester Examinations:

A student shall be declared PASS, if he/she secures atleast 50% marks in that particular course .i.e. a minimum of 50 marks for theory examinations out of 100 and 25 marks for practical examinations out of 50.

Attainment level 1 (Low): 50% of students in a class scoring more than or equal to 50% marks.

Attainment level 2 (Medium): 60% of students in a class scoring more than or equal to 50% marks.

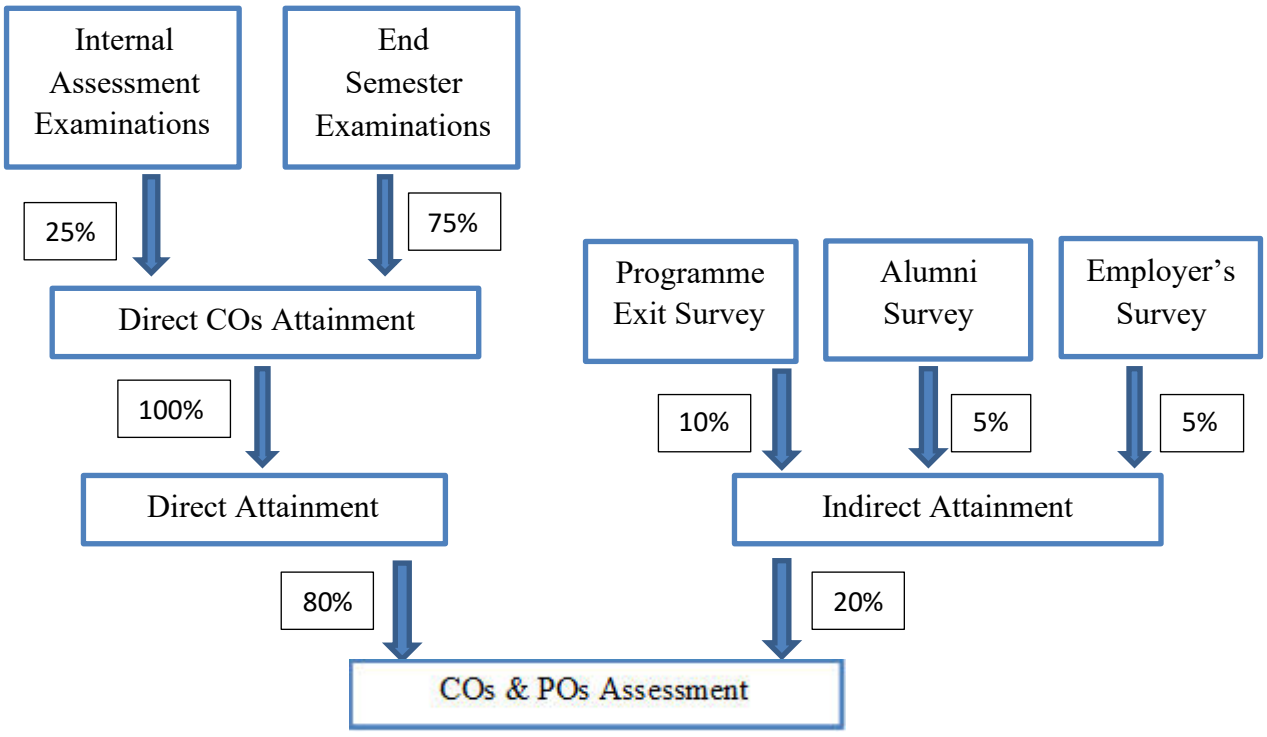
Attainment level 1 (High): 80% of students in a class scoring more than or equal to 50% marks.

11. ATTAINMENT OF PROGRAM OUTCOMES

Program Outcome Assessment Weightage

- Course outcome assessment methods employed are direct and indirect assessment methods and are considered for 80% and 20% weightages respectively.
- Internal assessment and End semester examination are considered with the weightage of 25% and 75% respectively for the direct assessment of CO.
- Indirect assessment of POs was evaluated by Programme exit survey(10%/), Alumni survey(5%) and Employer's survey(5%).
- Programme exit survey was carried out for all the students in the final semester at the end of the program to evaluate how far POs were met with.
- Relevant questionnaire was prepared and rated on a 3 point scale for the exit survey
- Alumni feedback was collected on a 3 point scale survey.
- Employer's feedback was also collected on a 3 point scale survey.

The detailed assessment process of POs is shown in below figure



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