



SREE VENKATESWARA COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi and Affiliated to JNTU, Anantapur)

Northrajapalem (Vi), Kodavaluru(M), S.P.S.R Nellore (Dt)-524316

CO Attainment Process

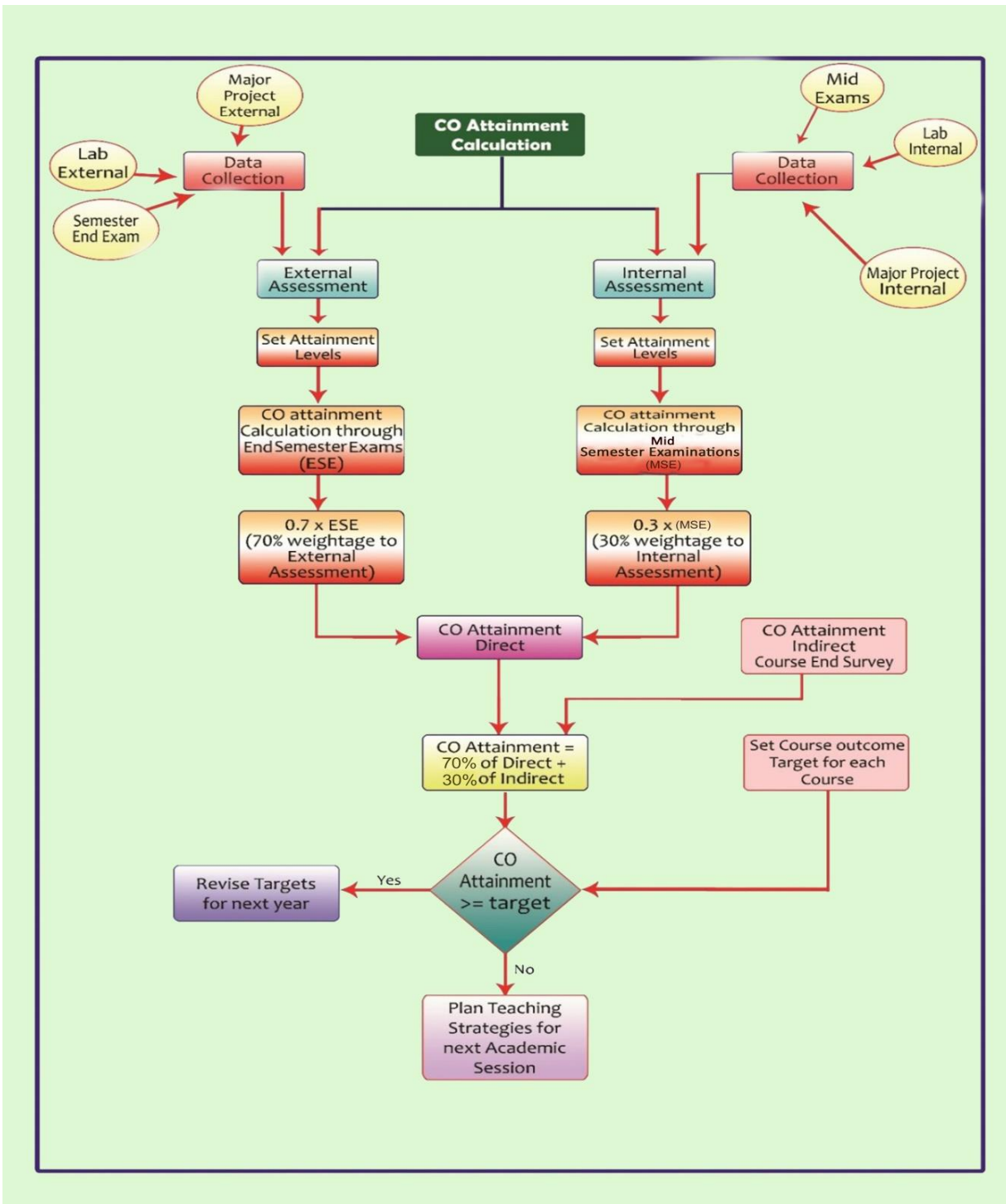


Figure: CO Attainment Process



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A. List of Assessment Processes:

- COs are formulated for each course in the curriculum by respective course coordinator/Senior faculty.
- To evaluate the attainment of COs, the data is gathered from the following assessments.
 - Student’s performance in midterm examinations.
 - Student’s performance in the university examinations.
 - Student’s feedback on rubrics of each CO of the corresponding course.
- To assess the course outcomes, direct assessment tools and indirect assessment tools are used.

1. Direct Assessment Tools: The assessment tools for computing the course outcomes are explained below.

a. Theory Courses:

- **Mid Semester Examinations:** The I Mid semester examination is conducted within 7-8weeks after the start of teaching of each semester and the II Mid semester examination is conducted after completion of the syllabus of each course. The syllabus for the I Mid exams is 40% of the syllabus and for II Mid Exams is 60% of the syllabus.
- **End Semester Examinations:** End semester examinations are conducted at the end of the semester. Complete syllabus is covered in these examinations.

Mid Semester Exam

1. List out the question wise marks of all the students in the mid exams.

Roll No.	MID 1						MID 2					
	M1Q1	M1Q2	M1Q3	M1Q4	M1Q5	M1MCQ	M2Q1	M2Q2	M2Q3	M2Q4	M2Q5	M2MCQ

2. Total marks for each question – 10 Marks

Eligibility: 50% of total marks i.e. 5 Marks

3. Note the number of students who scored ≥ 5 marks in each question.

4. For each question, compute the total marks of the students who scored ≥ 5 in that question.

$$5. \left\{ \begin{array}{l} \text{Compute \% of attainment of Internal exam} \\ \text{(descripti ve) marks for each question} \end{array} \right\} = \frac{\text{No.of students scored}(\geq 5)}{\text{No.of students attempted that question}} \times 100$$



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6. Convert % into 3 point scale.

$\geq 70\%$	- 3
60% - 69.99%	- 2
< 60	- 1

7. Compute the average attainment of each CO in Internal exam (descriptive) by considering all questions. This gives the CO direct attainment for mid semester marks in terms of percentage.

End Semester Exam

8. Calculate external marks of students who scored $\geq 40\%$ of total marks (i.e. 28 marks out of 70)

9. Note the number of students who scored more than 28 marks on the whole exam

10. Compute % of attainment for external marks = $\frac{\text{No. of students scored } \geq 28}{\text{No. of students appeared}} \times 100$

11. Convert the external marks attainment % into 3 point scale

$\geq 70\%$	- 3
60% - 69.99%	- 2
< 60	- 1

b. Practical Courses: The continuous assessment is carried out in the Day-to-Day evaluation of student performance in the laboratories with respect to the conduct of various experiments along with End semester laboratory examinations.

c. Technical Seminar: The Departmental committee follows the rubrics for evaluation of the technical seminar. Two technical seminar reviews will be conducted for each student.

d. Project work: The Project work is evaluated by departmental committee at regular intervals given by each student on the topic of his project work during the course work of the semester. The project committee members follow the rubrics for internal continuous evaluation of the project work. The End Semester Examination (Viva-voce) shall be conducted by a committee consisting of Head of the Department, Project Supervisor and an External Examiner.

e. Comprehensive Viva-Voce: The Comprehensive viva-voce will be conducted by the committee consisting of Head of the Department and two senior faculty members of the department. The Comprehensive Viva-voce is aimed to assess the students' understanding in various subjects he/she studies during the B. Tech. course of study.



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Table -1: Weightage distribution of Direct Assessment Components

Course Type	Assessment Methods	Weightage
Theory courses	Mid semester exams	30
	End semester exams	70
Practical courses	Internal assessment	30
	End semester exams	70
Technical Seminar	Internal assessment	50
Project work	Internal assessment	60
	External viva voice	140
Comprehensive Viva-Voce	Internal assessment	50

2. Indirect Assessment Tool:

Course End Survey: At the end-of-course, the student will be given the feedback on the course outcomes to improve the quality of the teaching process of the course. The survey is designed to examine the attainment of Course Outcomes for the given rubrics of the course.

B. The quality/ Relevance of Assessment processes and Tools used:

- The following tools are used to evaluate the attainment of COs:

1. Direct Assessment tools:

- Internal Evaluation
 - Theory Courses (Mid Examination).
 - Lab courses (Continuous Evaluation).
 - Seminar (Reviews).
 - Project work (Reviews).
 - Comprehensive Viva-Voce (Reviews).
- University Exams
 - Theory Courses
 - Practical Courses
 - Project work (Viva-Voce)

2. Indirect Assessment Tools:

- Course End Survey.



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Table -2: List of assessment tools used for CO attainment

S.No	Name of the Assessment Tool		Weightage
1	Direct Assessment Tools	Mid semester examinations	70%
		End semester examinations	
2	Indirect Assessment Tools	Course End Survey	30%

Course Outcome Attainment: Evaluation of internal and external examination marks for setting Course attainment levels for all courses.

Table -3: Evaluation of marks from both internal and external examinations

Academic Year	Semesters	Internal	External	Total marks
	I	30	70	100
	II	30	70	100

Step1: Direct Assessment

Measurement of Course attainment levels for Internal Examinations:

- Attainment **Level 1:** If the percentage of course outcome attainment is less than 60%.
- Attainment **Level 2:** If the percentage of course outcome attainment is in between 60% to 69.99% (inclusive).
- Attainment **Level 3:** If the percentage of course outcome attainment is above 70% (inclusive).

Measurement of Course attainment levels for External Examinations:

- Attainment **Level 1:** If the percentage of course outcome attainment is less than 60%.
- Attainment **Level 2:** If the percentage of course outcome attainment is in between 60% to 69.99% (inclusive).
- Attainment **Level 3:** If the percentage of course outcome attainment is above 70% (inclusive).

Overall Direct Assessment including Internal and University Examinations:

- Weightage to University Examinations: 70%
- Weightage to Internal Examinations: 30%



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Step2: Indirect Assessment:

Tools: Course End Survey

Process: Collect the feedback and calculate the weighted average as mentioned below

$$= \frac{\text{No. of Highs} \times 3 + \text{No. of Moderates} \times 2 + \text{No. of Lows} \times 1}{\text{No. of students}}$$

Step3: Overall Course outcome Attainment including direct and Indirect Survey:

Attainment of Course outcomes = 70% of Direct Assessment + 30% of Indirect Assessment.



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PO Attainment Process

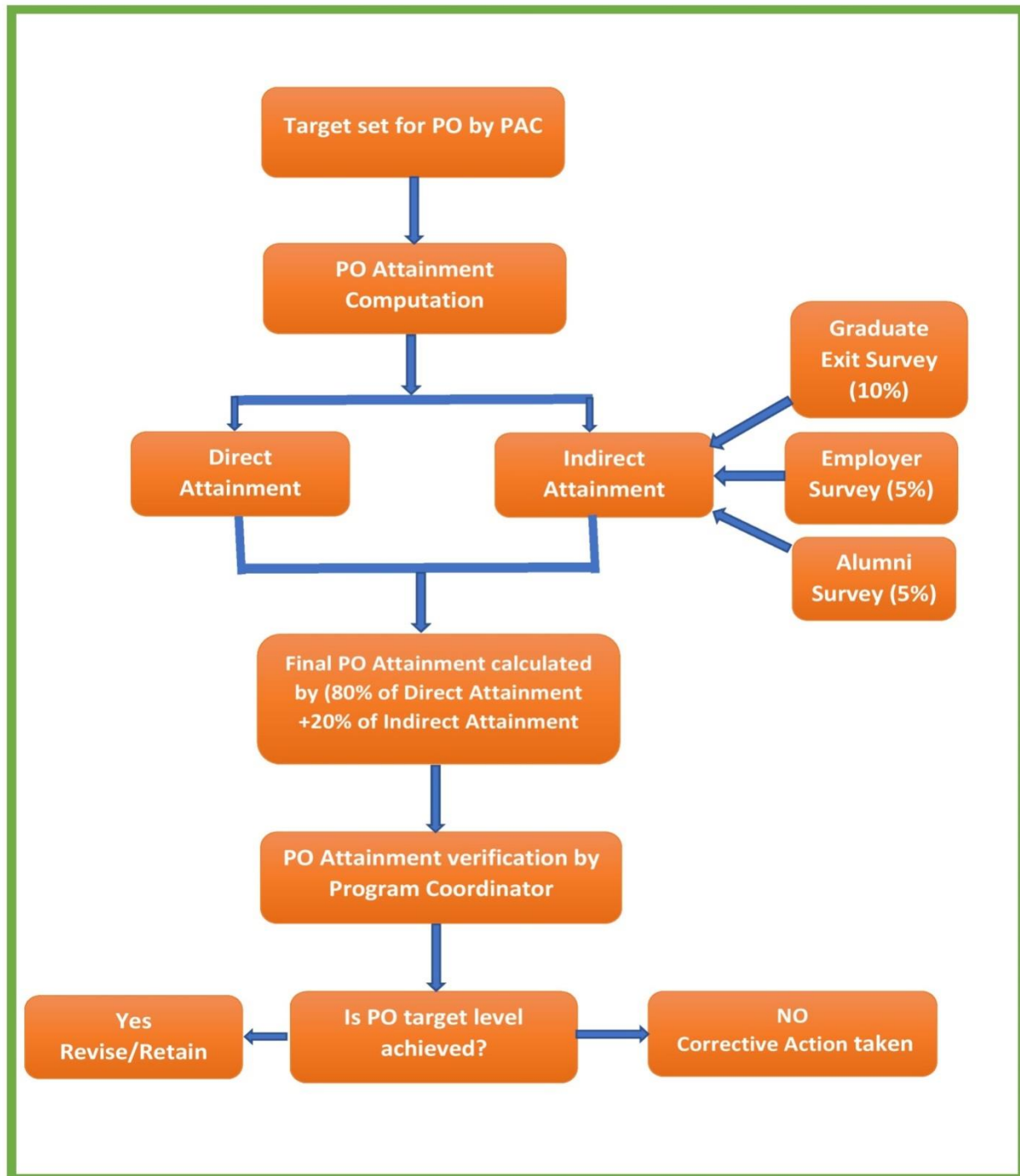


Figure: PO Attainment Process



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A. List of Assessment Tools and processes:

- Attainment of POs and PSOs is based on direct assessment tool as well as indirect assessment tool.

1. Direct Assessment Tool:

- Direct assessment of POs and PSOs is based on the students' performance in both internal examinations and university examinations for all courses.
- Performance of all the students in different assessments such as internal examinations and university examinations lead to attainment of COs which in turn lead to attainment of POs and PSOs based on the mapping of COs with POs and PSOs.
- Direct Assessment Tool is given 80% weightage in the attainment of POs and PSOs.

2. Indirect Assessment Tools:

- The indirect assessment tools that are used for attainment of POs and PSOs are
 - Graduate Exit Survey (10% weightage)
 - Alumni Survey (5% weightage)
 - Employer Survey (5% weightage)

B. The quality and Relevance of the Process used for measuring Attainment of POs and PSOs:

a. Direct Assessment

Step 1:

- POs and PSOs attainment at course level is calculated by taking the average of arithmetic multiplication of course outcomes attainment levels and CO-PO matrix.

$$\text{Course - PO attainment level} = \frac{\text{Sum of ((each CO - PO mapping)/ 3) x CO attainment level}}{\text{Total number of COs mapped}}$$

Step 2: Calculate the individual course POs as mentioned in step 1 and tabulate. Calculate the average of all individual course POs. The direct PO attainment level weightage is 80% of the average of all individual course POs.

b. Indirect Assessment:

The Indirect assessment Tools are Graduate Exit Survey, Alumni Survey and Employer Survey

Collect the Surveys and calculate the weighted average for each survey as mentioned below.

$$= \frac{\text{No. of Highs} \times 3 + \text{No. of Moderates} \times 2 + \text{No. of Lows} \times 1}{\text{No. of students}}$$



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The weightage given to Indirect Assessment is 20% as given below:

The weightage of Graduate Exit Survey (GES) -10%.

The weightage of Alumni Survey (AS) - 5%.

The weightage of Employer Survey (ES) - 5%.

c. Overall Attainment of POs and PSOs:

Attainment of POs and PSOs = 80% of Direct Assessment + 20% of Indirect Assessment.

(0.8* Direct PO attainment+0.1 * GES+ 0.05 * AS + 0.05 * ES)