List of Direct and Indirect assessment tools for PO and PSO

Attainment process of Course outcome (CO)

Visvesvarya Technical University provides the curriculum, scheme and syllabus of all courses. For all courses, the Course outcome (COs) is decided by the quality of the course. The COs needs to be measured and evaluated on the basis of the outcomes of the Semester End Exam (SEE) and the Continuous Internal Evaluation (CIE) test to verify the achievement of the COs. The Indirect attainment of a CO is calculated using Average feedback value for CO_i

Direct Attainment process:

1. **Continuous Internal Evaluation (CIE)**: Assessment for all theory courses is done by conducting three IA tests. For Laboratory courses, Continuous Internal Evaluation (CIE) and one Lab IA will be conducted at the end of semester.

2. **Semester End Exam (SEE)**: Assessment for all courses is done by SEE conducted by University.

3. **Continuous and Comprehensive Evaluation (CCE):** Assessment for all theory courses is done by conducting Quiz or providing assignments.

Attainment is determined using relevant assessment methods. The data needed to measure the course attainment are gathered from the following process as shown in the Figure Fig. 3.2.1

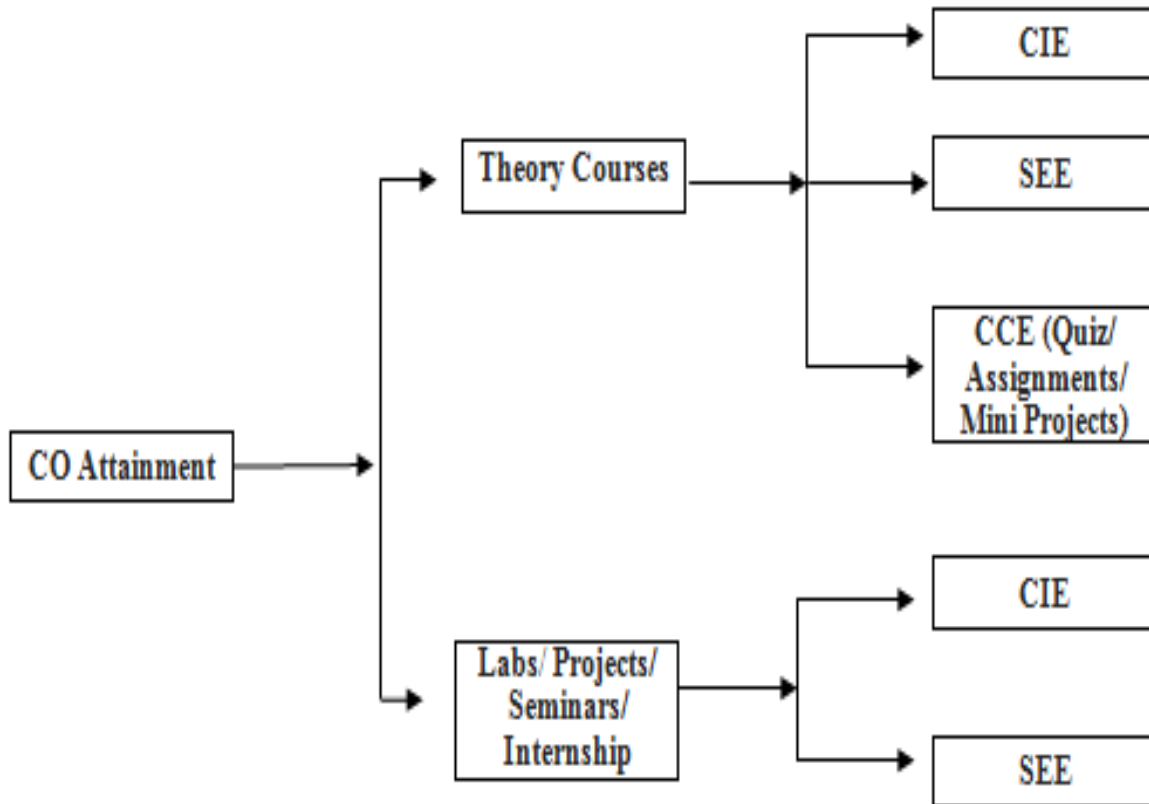**Data Collection Process to obtain CO attainment:**

Figure: 3.2.1

Note:
CIE: Continuous Internal Evaluation
SEE: Semester End Exam
CCE: Continuous and Comprehensive Evaluation

Calculating Attainment at each Level of Assessment for Course:

Direct Attainment

1. **Continuous Internal Evaluation (CIE):**
   Attainment of each CO of Continuous Internal Evaluation will be calculated by taking the ratio of number of students scored the marks greater than the targeted marks of each CO to total number of students attempted the questions mapped to each CO.

$$\text{Attainment of } CO_{n,CIE} = \frac{\text{No. of students Scored} > Target\ marks\ for\ CO_n}{\text{No. of Students Attempted Questions mapped to } CO_n}$$

   Where,

   Attainment of $CO_{n,CIE}$ - Attainment of each CO of Continuous Internal Evaluation

2. **Semester End Exam (SEE)**
   Attainment of each CO of Semester End Exam (SEE) will be calculated by taking the ratio of number of students scored the marks greater than the targeted marks in SEE to total number of students attended SEE

$$\text{Attainment of } CO_{n,SEE} = \frac{\text{No. of students Scored} > Target\ marks\ in\ SEE}{\text{No. of Students Attended SEE}}$$

   Where,

   Attainment of $CO_{n,SEE}$ - Attainment of each CO of Semester End Exam (SEE)

3. **Continuous and Comprehensive Evaluation (CCE)**
   Attainment of each CO of Continuous and Comprehensive Evaluation (CCE) will be calculated by taking the ratio of number of students scored the marks greater than the targeted marks for CO_n to total number of students attempted the questions mapped to each CO.

$$\text{Attainment of } CO_{n,CCE} = \frac{\text{No. of students Scored} > Target\ marks\ for\ CO_n}{\text{No. of Students Attempted Questions mapped to } CO_n}$$

   Where,

   Attainment of $CO_{n,CCE}$ - Attainment of each CO of
   Continuous and Comprehensive Evaluation (CCE)

**Direct Attainment of CO_n = IA_ Weightage * [(0.75 * CO_IA) + (0.25 * CO_CCE)]
+ SEE_ Weightage * [CO_SEE]**

If CO Attainment ≥ Target + 10, Level 3
If CO Attainment ≥ Target + 5, Level 2
If CO Attainment ≥ Target - Level 1

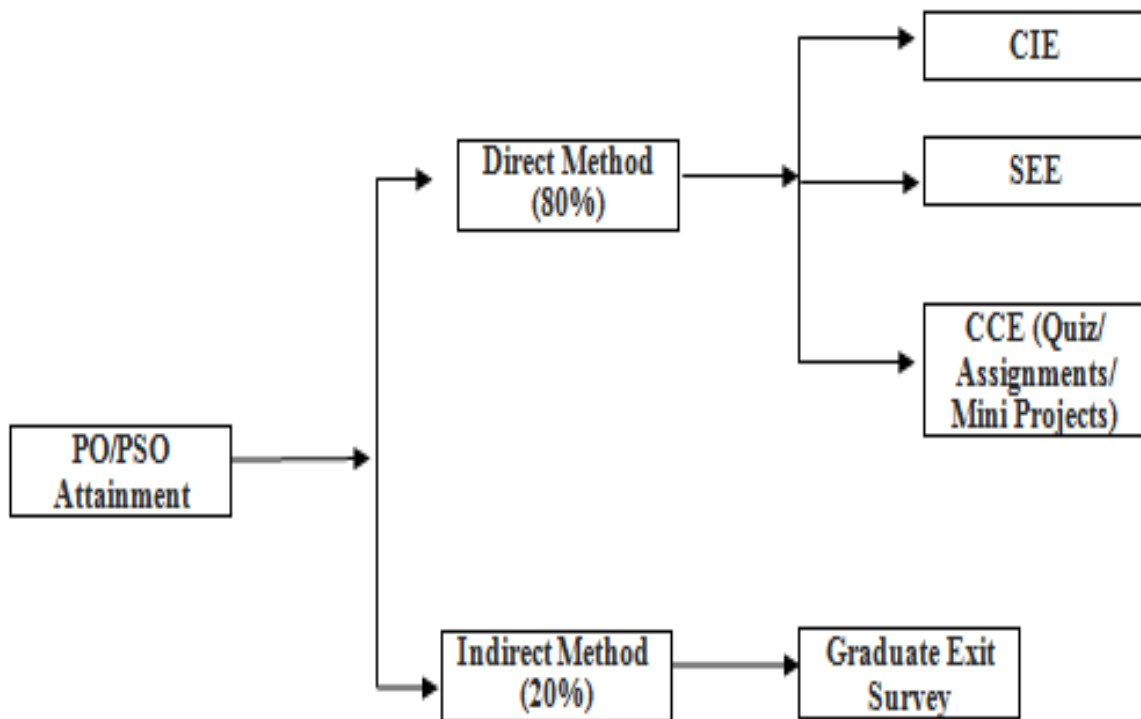## Attainment of Program outcome/ Program Specific Outcome (PO/PSO):

Figure: 3.3.1

Calculating the Final PO/PSO attainment Levels at Course Level:

After calculating weights and fraction of students attained at each level of assessment for a particular course, semester-wise PO attainment will be calculated by using the following formulas.

1. **Direct Assessment:**

   Direct attainment of a PO/PSO is calculated using final attainment of COs.

   $$\text{Attainment of PO}_i, \text{Direct} = \frac{(CO-\text{average attainment}) * \text{Average Matrix for PO}_i}{3}$$

2. **Indirect Assessment:**

   Indirect attainment of a PO/PSO is calculated using Average feedback value for PO_i

   $$\text{Attainment of PO}_i, \text{Indirect} = \text{Average feedback value for PO}_i$$

Total attainment:

Final Attainment of POi = [(0.8 * POi, Direct) + (0.2 * POi, Indirect)]

   Note: Similar calculations will be done for all POs and PSOs.

Weights Considered for Direct and Indirect Attainment

Weights considered for direct and indirect attainment of PO and PSO is

Direct attainment = 80%

Indirect attainment = 20%

Process to set target for Course Outcome (CO)

Course Evaluation	Scheme	Batch	Marks Distribution	Target Fixed in Percentage
CIE	2018 Scheme	2018 - 2022	40 Marks	65% - 75% for Theory subjects, 75% - 85% for Labs 75% - 85% for Project /Seminars
SEE	2018 Scheme	2018 - 2022	60 Marks	65% - 75% for Theory subjects, 75% - 85% for Labs 75% - 85% for Project /Seminars

Table.3.3.1

Process to set target for Program Outcome (PO)/ Program Specific Outcome (PSO)

Faculty meeting is held at the beginning of the every semester and within this meeting, by considering the opinion of all faculties the target is set for each PO / PSO.