

2.6.2

Methodology for Calculating PO Attainment

The Program Outcomes (POs)/Program Specific Outcomes (PSOs) are the qualities that must be imbibed in the graduates by the time of completion of their program. At the end of each program, the PO/PSO assessment is done from the CO attainment of all curriculum components. The PSOs are framed based on the guidelines of Learning outcomes.

For every Course, there are number of outcomes to be achieved at the end of the course. This outcome is usually a combination of main course content and may cover more than one topic. All course outcomes shall have linkage to programme outcomes in such a way that the strongest relation has the weight 3 and the weakest relation is 1. The relation is put into a table given below:

Step1: Develop CO – PO mapping at each Course Level and Program Level

	PO1	PO2	PO10
CO1	3	2	.	2
CO2	3	1	.	1
CO3	2	2	.	1
CO4	1	3	.	2
Average	2.25	2.00		1.5

$$WP_i = \sum^j (CO_j) / 4 \quad (i=1 \text{ to } 10 \text{ and } j=1 \text{ to } 4)$$

(where WP_i is the Weight factor for Programme Outcome PO_i

Step 2: COs Attainment Targets at Course Level

Course Evaluation	Levels of Assessment (Marks Distribution)	Target Fixed	Attainment Level
CIA (25 Marks)	DA (10 Marks)	> 6 Marks	1, otherwise 0
	IA (15 Marks)	> 8 Marks	1, otherwise 0
SEE (75 Marks)	FA	>30 Marks	1, otherwise 0

(CIA- Continuous Internal Assessment, SEE – Semester End Exam, DA – Direct Assessment, IA – Indirect Assessment, FA- Final Assessment)

Step 3: Calculating Attainment at each Level of Assessment for Course

CO is said to be attained by a student if he/she gets greater than 40% of marks in FA, greater than 60% of marks in DA and around 55% of marks in IA as fixed targets. The fraction of students who attained the target is calculated for a course as a whole using the following formulas:

CO_DA = Total Number of Students reached the target / Total number of students attended

CO_IA = Total Number of Students reached the target / Total number of students attended

CO_FA = Total Number of Students reached the target / Total number of students attended

Step 4: Calculating Semester-wise Attainment for each Level

1. Calculating the Final PO attainment Levels for a Course and Semester:

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 formula for three different levels of assessment.

Direct Assessment:

$$P_{iDAj} = \frac{\sum(WP_i * CO_DA)}{\sum WP_i}$$

Indirect Assessment:

$$P_{iIAj} = \frac{\sum(WP_i * CO_IA)}{\sum WP_i}$$

Final Assessment:

$$P_{iFAj} = \frac{\sum(WP_i * CO_FA)}{\sum WP_i}$$

(Fix j = 1 to 6 (Semester number) and i vary from 1 to 10)

Step 5: Calculating attainment at each level for a Programme

After calculating semester wise PO attainment for each level of assessment for six semesters, Programme wise attainment will be calculated by using the following formula for three different levels of assessment.

Direct Assessment:

$$P_{iDA} = \frac{\sum_j P_{iDAj}}{n} \times 100$$

Indirect Assessment:

$$P_{iIA} = \frac{\sum_j P_{iIAj}}{n} \times 100$$

Final Assessment:

$$P_{iFA} = \frac{\sum_j P_{iFAj}}{n} \times 100$$

(i =1,...10, j=1,...6 and n = Total No. of Semesters)

For Example: The PO Attainment for a Program M.P.C(EM) for the 2015- 18 batch is attained as follows:

POs / Programs		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
MPC(EM)	DA	86.56	84.1	83.51	83.57	85.4	83.14	81.8	81.32	80.47	81.92
	IA	87.55	87.38	87.08	87.96	87.87	87.97	87.14	87.15	86.61	87.13
	FA	86.20	86.43	86.06	86.41	86.42	86.57	85.99	85.97	86.26	86.17