



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(An Autonomous Institution since 2010)

Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada

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Assessment tools and processes used to evaluation of Course Outcomes:

COs are evaluated based on the performance of students in a CIE and SEE.

Theory course:

I) Assessment Process:

The process of course outcome assessment is based on performance of the students in CIE, SEE. Each question in mid/semester end/assignment are mapped to the corresponding CO and the overall attainment of that CO is based on percentage of students scored more than 60% of marks.

CIE consist of:

Mid Examinations-This type of performance assessment is carried out during the examination sessions which are held twice a semester. Each and every exam is focused in attaining the course outcomes.

Assignment-Each and every student is assigned with course related tasks during every course work and assessment will be done based on their performance. Grades/ Marks are assigned depending on their innovation in solving/deriving the problems.

Semester End Examination-Semester End examination is a metric for assessing whether all the COs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive exam.

A) Direct Assessment

a) Mid-Examinations: Performance assessment is carried out during the examination sessions which are held twice in a semester. Each exam is focused on attaining the COs.

b) Quiz examination: Performance assessment is carried out during the examination sessions which are held twice in a semester. Each exam is focused on attaining the course outcomes.

c) Assignment: Each student is assigned with course related tasks during every course work and assessment will be done based on their performance. Marks are assigned depending on their in solving skills /deriving the problems.

d) Semester End Examination (SEE): Semester End examination is a metric for assessing whether the entire COs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive exam

B) Indirect Assessment:

Course End Survey is taken at the end of every semester for each course

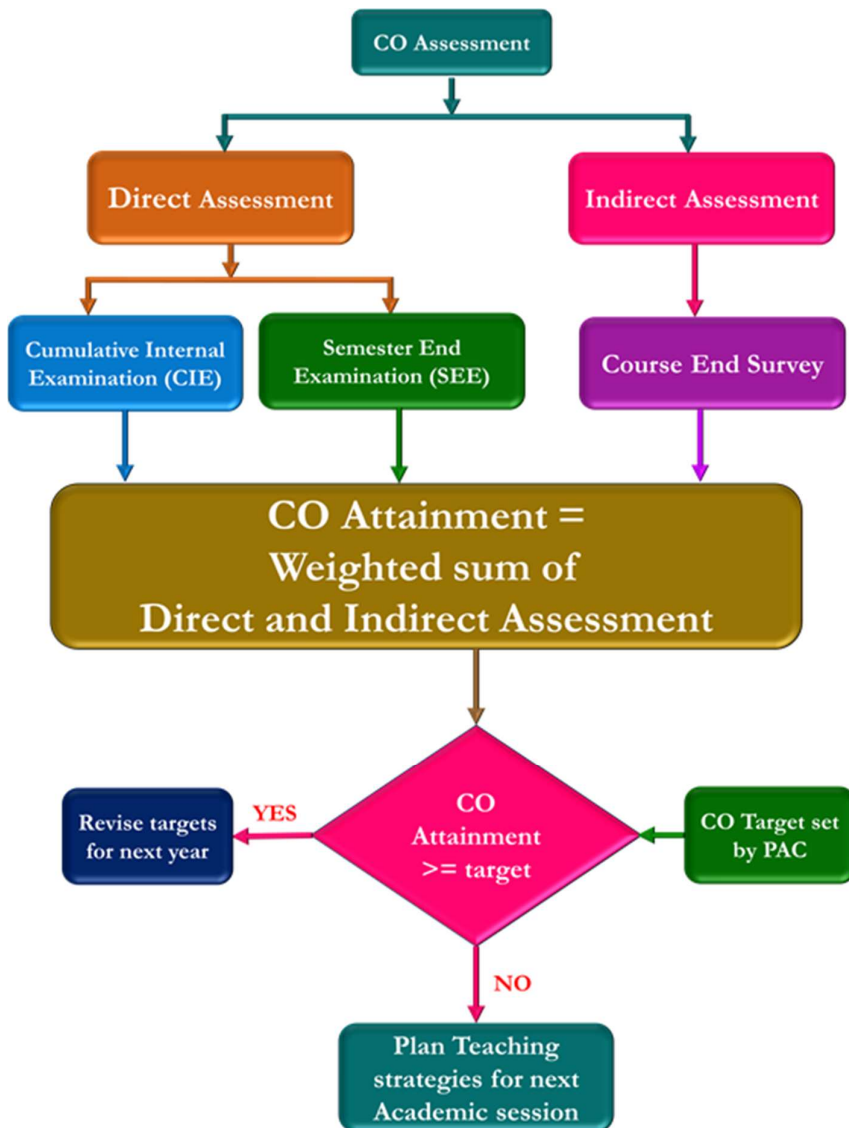


Fig .1. COs Assessment processes and tools

Course Outcomes assessment tools and attainment process

The following processes & tools are used for the attainment of course outcomes

I). Theory course:

Direct Assessment Tools:

Mid-Semester Examinations: Performance assessment is carried out during the examination sessions which are held twice in a semester. Each exam is focused on attaining the COs.

Quiz examination: Performance assessment is carried out during the examination sessions which are held twice in a semester. Each and every exam is focused on attaining the course outcomes.

Assignment: Each student is assigned with course related tasks during every course work and assessment will be done based on their performance. Grades / Marks are assigned depending on their innovation in solving/deriving the problems.

Semester End Examination (SEE): Semester End examination is a metric for assessing whether the entire COs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive exam.

Indirect Assessment Tools:

Course End Survey is conducted for every course at the end of the course

The following procedures are adopted to calculate the CO-PO attainments.

a). UG - B.Tech

I) Computation of COs-Theory courses

Target level	Attainment level
<40% of Students got more than 60% of Marks	1
40% to <60% of Students got more than 60% of Marks	2
>=60% of Students got more than 60% of Marks	3

II) The relevance of Assessment tools

Assessment tools for CIE and SEE

A) Direct Assessment tools

i) Cumulative Internal Examinations (CIE) (40%)

- a) Mid exams (25 %)
- b) Assignments (5 %)
- c) Quizzes (10 %)

ii) Semester End Examinations (SEE) (60 %)

COs Direct Attainment:

$$25 \% \text{ of a) } + 5 \% \text{ of b) } + 10 \% \text{ of c) } + 60 \% \text{ of SEE}$$

B) Indirect Assessment tools

- Course end survey (10 %)

COs Attainment = 90 % of Direct Attainment + 10 % of Indirect Attainment

Initial Targets for Course Outcomes (COs):

Blooms Level	CO Target
Create level – L6	>1.30
Evaluate level – L5	>1.30
Analysis level – L4	>1.50
Apply level – L3	>1.80
Understanding level – L2	>2.10
Remembering level – L1	>2.40

- Sample attainment of theory course:

R23 (LAC- 23FE03) ATTAINMENT SHEET (I YEAR –I-SEM) for CSE									
CIE Attainment					Question-CO correlation				
Descriptive Test	Question No.	% Students Attempted	% CO Attainment	Attainment Level	CO1	CO2	CO3	CO4	CO5
MID-I	Q1a	96.29	91.84	3	1				
	Q1b	94.32	91.44	3	1				
	Q1c	6.99	78.13	3					
	Q1d	6.33	75.86	3					
	Q2a	42.14	73.58	3		1			
	Q2b	32.31	85.14	3		1			
	2	69.00	79.75	3		1			
	Q3a	66.59	81.64	3	1				
	Q3b	64.63	83.78	3	1				
	Q3c	40.17	85.87	3		1			
	Q3d	27.95	72.66	3		1			
MID-II	Q1a	98.69	97.57	3			1		
	Q1b	96.29	95.46	3			1		
	Q1c	10.70	87.76	3			1		
	Q1d	4.80	95.45	3					
	Q2a	92.58	94.81	3				1	
	Q2b	81.66	78.88	3				1	
	Q2c	14.85	82.35	3					1
	Q2d	19.00	78.16	3					1
	Q3c	47.16	83.33	3					1
	Q3d	33.62	66.88	3					1
Descriptive Test Attainment					3.00	3.00	3.00	3.00	3.00
Assignment	A1	100	100.00	3	1	1			
	A2	100	100.00	3			1	1	1
Assignment Attainment					3.00	3.00	3.00	3.00	3.00
Quiz	Q1	99.56	73.90	3	1	1			
	Q2	99.56	91.67	3			1	1	1
Quiz Attainment					3.00	3.00	3.00	3.00	3.00

SEE Attainment			Question-CO Correlation						
SEE	Question No.	% Students Attempted	% CO Attainment	Attainment Level	CO1	CO2	CO3	CO4	CO5
PART A	1 (a) & 1 (b)	100.00	86.78	3	1				
	1 (c) & 1 (d)	100.00	77.09	3		1			
	1 (e) & 1 (f)	100.00	89.87	3			1		

	1 (g) & 1 (h)	100.00	78.41	3				1	
	1 (i) & 1 (j)	100.00	57.93	2					1
PART B	Q2a	94.93	93.04	3	1				
	Q2b	92.95	79.86	3	1				
	Q3a	21.59	82.65	3	1				
	Q3b	19.38	80.68	3	1				
	Q4	19.16	72.41	3		1			
	Q5	90.09	78.48	3		1			
	Q6a	94.05	84.54	3			1		
	Q6b	94.27	89.72	3			1		
	Q7a	15.42	82.86	3			1		
	Q7b	12.11	70.91	3			1		
	Q8a	90.97	87.89	3				1	
	Q8b	86.34	69.90	3				1	
	Q9a	17.18	78.21	3				1	
	Q9b	11.45	69.23	3				1	
	Q10a	33.70	28.76	1					1
	Q10b	30.40	65.94	3					1
	Q11a	69.82	69.09	3					1
	Q11b	71.81	81.90	3					1
	Attainment in SEE				3.00	3.00	3.00	3.00	2.40

					CO Attainment = 0.90* Direct + 0.10*Indirect
Internal Exams (15 M)	Assignments (5 M)	Quiz (10 M)	SEE (70 M)	CES	CO Attainment
Attainment	Attainment	Attainment	Attainment	Attainment	
3.00	3.00	3.00	3.00	2.65	2.96
3.00	3.00	3.00	3.00	2.62	2.96
3.00	3.00	3.00	3.00	2.53	2.95
3.00	3.00	3.00	3.00	2.41	2.94
3.00	3.00	3.00	2.40	2.37	2.61

Final COs Attainment = (60% of SEE + 25% of Descriptive + 10% of Quiz + 5% of Assignment)*0.90 + 0.1 of CES as indirect attainment)					
Assessment Tool	CO1	CO2	CO3	CO4	CO5
MID Attainment Level	3.00	3.00	3.00	3.00	3.00
Assignment Attainment Level	3.00	3.00	3.00	3.00	3.00
Quiz Attainment Level	3.00	3.00	3.00	3.00	3.00
SEE Attainment Level	3.00	3.00	3.00	3.00	2.40
Course End Survey attainment Level	2.65	2.62	2.53	2.41	2.37
COs Attainment	2.96	2.96	2.95	2.94	2.61
CO Target	1.95	1.95	1.80	1.80	1.80

II) Computation of COs-Laboratory (Practical) courses

Target value	Attainment level
>10% to <50% of Students got more than 60% of Marks	1
50 to <80% of Students got more than 60% of Marks	2
>=80% of Students got more than 60% of Marks	3

I) Assessment Process

Rubrics are formulated for the assessment of Laboratory courses.

A) Direct Assessment

a) Day to Day (Weekly Performance): Performance assessment is carried out during the Day-to-day work in the laboratory shall be evaluated for 10 marks.

b) Record: Student performance is assessed through the record work in the laboratory for 5 marks.

c) Internal Examination: Performance assessment is carried out during the internal examination in the laboratory shall be evaluated for 15 marks.

d) Semester End Examination (SEE): Student performance is assessed in semester end examination in the laboratory for 70 marks.

B) Indirect Assessment: Course End survey (CES) is taken at the end of semester

II) The relevance of Assessment tools

A) Direct Assessment tools

i) CIE

a) Day to Day Evaluation (10 %)

b) Record (10 %)

c) Internal Examination (20 %)

ii) SEE (60%)

Attainment of COs (Direct) = 10 % of a) + 10 % of b) +20 % of c) +60 % of SEE

B) Indirect Assessment tools

Course end survey (10 %)

CO Attainment = 90 % of Direct Attainment +10 % of Indirect Attainment

Revision of CO target (After two years)

- ✓ If the average CO attainment of two batches is greater than the target, then increase the target.
- ✓ If the average CO attainment of two batches is less than the target, then retain the target for further observations.

Blooms Level	CO Target
Create level – L6	>1.50
Evaluate level – L5	>1.50
Analysis level – L4	>1.80
Apply level – L3	>2.10
Understanding level – L2	>2.40
Remembering level – L1	>2.70

COs Attainment = 90 % of Direct Attainment +10 % of Indirect Attainment

PO Attainment = Average of Direct Attainment through all the courses.

- Sample attainment of laboratory course
- Attainment of communicative english lab(23FE51) for CE

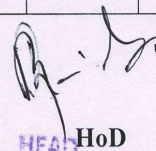
1. Attainment of Course Outcomes through Semester Internal Examinations (SIE):

CIE Attainment -Experiment to CO Correlation							
		% students attempted	CO Attainment level	CO1	CO2	CO3	CO4
D-D Performance	Exp.1	100.00	3	1			
	Exp.2	100.00	3	1			
	Exp.3	100.00	3		1		
	Exp.4	100.00	3		1		

	Exp.5	100.00	3			1	
	Exp.6	100.00	3			1	
	Exp.7	100.00	3			1	
	Exp.8	100.00	3				1
	Exp.9	100.00	3				1
	Exp.10	100.00	3				1
	CO Attainment			3.00	3.00	3.00	3.00
Record	Exp.2	100.00	3	1			
	Exp.3	100.00	3		1		
	Exp.4	100.00	3		1		
	Exp.5	100.00	3			1	
	Exp.6	100.00	3			1	
	Exp.7	100.00	3			1	
	Exp.8	100.00	3				1
	Exp.9	100.00	3				1
	Exp.10	100.00	3				1
	CO Attainment			3.00	3.00	3.00	3.00
Internal Exam	Exp.1	100.00	3	1			
	Exp.2	83.33	3	1			
	Exp.3	66.67	2		1		
	Exp.4	50.00	2		1		
	Exp.5	83.33	3			1	
	Exp.6	66.67	2			1	
	Exp.7	83.33	3			1	
	Exp.8	66.67	2				1
	Exp.9	100.00	3				1
	Exp.10	100.00	3				1
	CO Attainment			3.00	2.00	2.67	2.67

2. Attainment of Course Outcomes through Semester END Examinations (SEE):

SEE Attainment						
	% students attempted	CO Attainment level	CO1	CO2	CO3	CO4
Exp.1	100	3	1			
Exp.2	100	3	1			
Exp.3	100	3		1		
Exp.4	100	3		1		
Exp.5	100	3			1	
Exp.6	100	3			1	
Exp.7	100	3			1	
Exp.8	100	3				1
Exp.9	100	3				1
Exp.10	100	3				1
CO Attainment			3.00	3.00	3.00	3.00
			CO1	CO2	CO3	CO4
Day to Day (10%)			3.00	3.00	3.00	3.00
Record (10%)			3.00	3.00	3.00	3.00
Internal Exam (20%)			3.00	2.00	2.67	2.67
SEE (60%)			3.00	3.00	3.00	3.00
Course End Survey (10%)			2.48	2.60	2.55	2.58
CO Attainment			2.95	2.78	2.90	2.90
CO Target			2.60	1.80	2.10	1.90



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