

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ASSESSMENT TOOLS AND PROCESSES FOR PO'S & PSO'S (2019-23 BATCH)

Prepared by: PAC
Regulation: MLR18

Approved by: DAC
Program : B.Tech

The Following paragraphs describe assessment tools and processes used for measuring the attainment of each Program Outcome and Program Specific Outcomes

Program Outcomes and Program Specific Outcomes of the Program are attained by using two methods:

- Direct Assessment
- Indirect Assessment

80% of Direct Assessment and 20% of Indirect Assessment will be considering for final PO Attainment.


A. Direct Assessment:

Direct assessment of POs & PSOs is a systematic and on-going process of collecting, interpreting, and acting on information relating to the goals and outcomes developed to support the department and institution's mission and vision.

The direct attainment of POs calculated based on weighted Average percentage Method. The mapping weightaged are given in following table

Table.1 weighted Average Method

SINO.	Map Level Name	Value	Map Level Weightage%
1	High(3)	3	3/3=100.00%
2	Medium (2)	2	2/3=67.00%
3	Low(1)	1	1/3=34.00%



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Table.2 List of Assessment tools

Assessment Method	Assesmet Tool	Maximu m Marks	Duration (Min)	Direct/ Indirect Tool
Cumulative Internal Evaluation (CIE) – Theory Courses	Mid Test–1	25	120	Direct
	Assignment-1	5	One Assignment For Each Unit	Direct
	Mid Test–2	25	120	Direct
	Assignment –2	5	One Assignment For Each Unit	Direct
Cumulative Internal Evaluation (CIE) – Practical Courses	MID- I	15	150	Direct
	MID-II	15	150	Direct
	Day to Day Evaluation	15	Everyweek	Direct
Semester End Examination(SEE)- Theory Courses	External Evaluation	70	180	Direct
Semester End Examination(SEE)- Practical Courses	External Evaluation	70	180	Direct
Cumulative Internal Evaluation(CIE)- Technical Seminar	Internal Evaluation	30	-	Direct
Semester End Examination (SEE)- Technical Seminar	External Evaluation	70	180	Direct
Semester End Examination(SEE) – Comprehensive Viva	External Evaluation	100	-	Direct
Semester End Examination (SEE) – Summer Internship	External Evaluation	100	-	Direct
Cumulative Internal Evaluation (CIE) – Project Work	Internal Evaluation	150	-	Direct
Semester End Examination (SEE) – Project work	External Evaluation	150	-	Direct


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Table.3 The weightages of various assessment tools for different courses

	Assessment Tool	Weightage %	Total
Theory Courses	CIE	30	100
	SEE	70	
Practical Courses	CIE	30	100
	SEE	70	
Technical Seminar	CIE	30	100
	SEE	70	
Comprehensive Viva	SEE	100	100
Summer Internship	SEE	100	100
Project work	CIE	50	100
	SEE	50	

The processes of attainment of CO's and PO's are given in following flow chart.

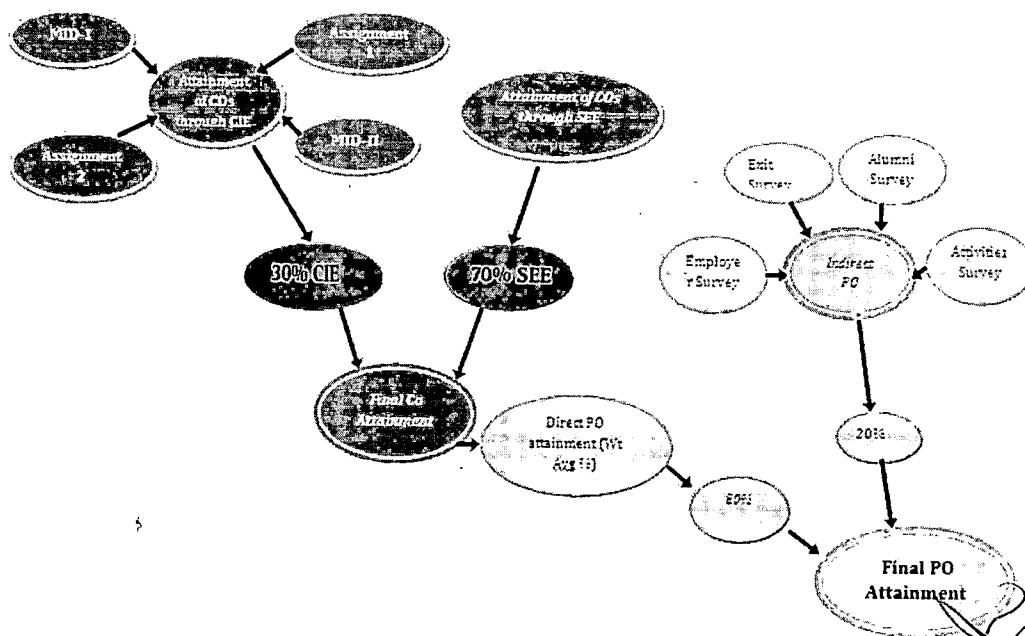


Fig.1 Process of attaining COs and Pos

B. Indirect Assessment:


The following Surveys/Feedbacks are conducted during the course of study of program in each semester or end of the program. Evaluated data in terms of attainment percentages of the students is collected from the Course/Program coordinator.

Table.4 Indirect assessment tools

S. No	Name of the Survey	Frequency of Assessment is done
1	Program Exit Survey	End of Program
2	Alumni Survey	Once in year
3	Employer Survey	Once in year
4	Co-Curricular/Extra Curricular Activities	Once in year



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PO's & PSO's Attainment Of 2019-23 Batch

> **Direct Assessment :**

PO's and PSO's Attainment of the program through direct assessment is shown in following Table-1. Target is specified as 60% of students should get equal or greater than 60% of marks.

Table 1: Complete PO's & PSO's Attainments Through Direct Assessment Of 2019-23 Batch


S.No	COURSE	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	LINEAR ALGEBRA AND CALCULUS	A4BS02	58.4	53.9												
2	Applied Physics	A4 BSO2	61.3	51.5	21.7	65.4						44.0		44.6		
3	Basic Electrical Engineering	A4EE01	61.2	51.4	21.7	65.4						44		44.5		
4	Engineering Graphics and Design	A4ES02	71.1	56.3	53.6	57.2	51.1	37	37.7						51.1	
5	Applied Physics Lab	A4BS10	95.8	64.7	42.6									95.8		
6	Basic Electrical Engineering Lab	A4EE02				95.8										
7	Workshop Practices	A4AE63	88.3				83.7				62.9			83.7		


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8	Social Innovation	A4HS03	82.3	90.9	77.6		86.1	73.8	82.5							
9	Technical Seminar-I	A4MC04	90.5	67.7		64.6					58.9					
10	ADVnced Calculus	A4BS04	54.9	51.5												
11	Chemistry	A4BS11	46.7	51.3					47.9						43.1	


12	Programming for Problem Solving	A4CS01	57.6	38.4	35.8										40.7	
13	English	A4HS01	48.0	47.63			45.8								34.7	
14	Programming for Problem Solving Lab	A4CS)2	75.8	61.7	41.7										82.4	56.8
15	Chemistry Lab	A4BS12	95.8	71.5		63					63.8					
16	English Language and Communication Skills Lab	A4HS02	95.4	95.4	63.6		71.5			63.6		63.6			79.5	
17	Engineering Exploration	A4HS04	96.1	97.3	87.9		96.7	84.9	94.2							
18	Technical Seminar-II	A4MC05	90.7	67.8		64.3					59.0					
19	Probability And Statistics	A4BS05	56.44	53.03	30.14	27.74	48.99		13.31	11.87		27.17			19.19	
20	Discrete Structures	A4CS03	57.95	62.13											79.03	
21	Data Structures	A4CS04	48.8	68.3	73.1	68.9							68.9	68.9		
22	Database Management Systems	A4CS05	65.04	48.50	71.69		37.08						63.86	48.50	21.71	24.61
23	Electronic Devices	A4EC71														
			28.54	33.63	50.19	56.53										
24	Data Structures Lab	A4CS06	54.0	81.1	54.0	46.7							46.7	54.0	54.0	56.3
25	Database Management Systems Lab	A4CS07	97.17		96.54		53.89						97.17	64.48		64.48
26	Environmental Science	A4MC01						88.2		88.15						
27	Digital Electronics	A4EC72	52.25	63.32	74.32	69.64										


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28	Computer Organization And Architecture	A4CS08	44.36	38.80	37.40	38.80	48.20	40.04	31.70	28.85			39.02	30.09	69.90	
29	Object Oriented Programming	A4CS09	83.25	73.81	81.47	55.77							68.26	82.56	56.92	
30	Design And Analysis Of Algorithms	A4CS10	46.89	37.76	62.36											
31	Business Economics And Financial Analysis	A4HS06	80.23	66.48					72.39							
32	Electronic Devices And Digital Logic Lab	A4EC73	64.09	64.20	95.82	95.76										
33	Object Oriented Programming Lab	A4CS11	90.42	90.32	90.45										69.90	
34	Gender Sensitization	A4MC02						88.2		88.15						
35	Web Technologies	A4IT04			54.24		80.32				52.09					52.09
36	Formal Language And Automata Theory	A4CS12	51.97	60.92									46.44	17.67		
37	Operating Systems	A4CS13	96.74	96.74	96.74	96.74										
38	Artificial Intelligence	PEC	90.88		85.58		63.70	60.84								
39	Principles of Communication	OEC			52.10		78.55				61.88					
40	Web Technologies Lab	A4IT05			60.61	78.73	90.78				61.13		90.47	90.78		90.78
41	Advanced English Communication Skills Lab	A4HS07								100		100		53.8		
42	Summer Internship	A4CS55	50.26	74.90	50.27	99.53	66.69	50.27	66.69		60.12	99.53	86.39	73.25		
43	Constitution Of India	A4MC03	78.89	56.77				99.53	66.69							
44	Compiler Design	A4CS14	61.63	58.72	40.26	55.42								52.09	56.79	36.67
45	Computer Networks	A4CS15	66.82	52.65	54.64	45.28	70.25		52.65		54.58		54.58		81.46	60.11

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46	Linux Programming	A4CS16	81.39		81.39	65.30										65.30
47	Data Mining	PEC	60.38	64.36	64.36	60.13	61.08				46.56		63.86			
48	Cloud Computing	PEC	74.00				67.17		50.38	72.13						
49	Network Simulation Lab	A4CS17	82.1	94.8			99.52		74.64	96.75						
50	Linux Programming Lab	A4CS18	71.23	95.28			97.09									
51	Comprehensive Viva	A4CS56					99.53									
52	Essence Of Indian Traditional Knowledge	A4MC06	78.89	56.77				99.53	66.69							
53	Big Data Analytics	A4CS19	54.53	65.88	46.27	55.90	55.64							55.42	56.79	54.53
54	Cryptography and Network Security	PEC	100	100	88.38	100	78.35		52.49	76.77						
55	Distributed Systems	PEC	45.31	49.25	71.32		61.73								56.79	
56	E-commerce	OEC			89.36	100	48.22		36.17	60.50						
57	Big Data Analytics Lab	A4CS20	86.78	97.51	97.51	97.51	91.07				86.78			97.51		97.51
58	Project Phase - 1	A4CS57	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52
59	Software Testing Fundamentals	PEC	100.00				73.87		55.40	80.40						
60	Operations Research	A4HS05	95.15				52.03		39.02	63.41						
61	Management Science	HSMC						84.34		93.10	71.98		92.64	75.92		
62	Project Phase - II	A4CS58	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52	99.52
63	Machine Learning	PEC	61.15	84.19		68.11	66.68	69.83							56.79	
64	Comprehensive Viva-2	A4CS21	50.02	74.53	50.02	99.05	66.36	50.02	66.36		59.82	99.05	99.05	72.90		


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Average	71.79	67.07	65.28	71.88	71.59	75.04	60.89	77.40	66.57	75.15	75.72	64.75	60.69	66.92
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Summary results of Program Outcomes and Program Specific Outcome of the program through direct assessment are shown in following Table-2

Table 2: Summary of PO's & PSO's Attainments through Direct Assessment for 2019-23 batch

PO/PSO	PO ATTAINMENT %THROUGH DA	ATTAINED(YES/NO)
PO1	71.79%	YES
PO2	67.07%	YES
PO3	65.28%	YES
PO4	71.88%	YES
PO5	71.59%	YES
PO6	75.04%	YES
PO7	60.89%	YES
PO8	77.40%	YES
PO9	66.57%	YES
PO10	75.15%	YES
PO11	75.72%	YES
PO12	64.75%	YES
PSO1	60.69%	YES
PSO2	66.92%	YES

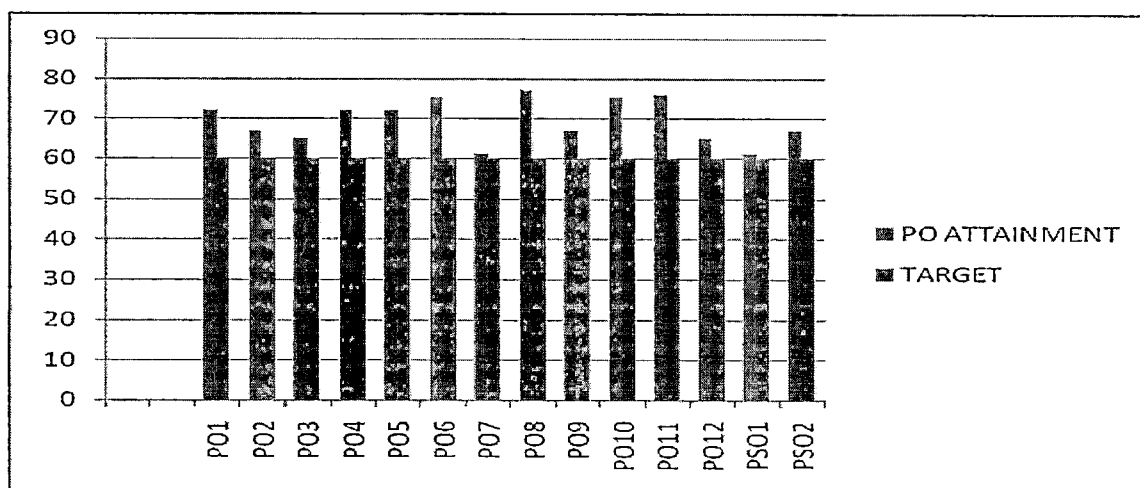


Figure 1: PO's & PSO's Attainments through Direct Assessment for 2019 -23 batch

The summary results of PO's and PSO's direct assessment of the program are shown in the above Table-1 and in Figure-2. Target is specified as equal or greater than 60% and the target is achieved.

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➤ **Indirect Assessment:**

The following Surveys/Feedbacks are conducted during the course of study of program in each year or end of the program. Evaluated data in terms of attainment percentages of the students is collected from the Course/Program coordinator and Indirect assessment results are shown in following Table-3.

Table 3: Complete PO's & PSO's attainments through Indirect Assessment for 2019-23 batch

S. NO	SURVEY	PO&PSO ATTAINMENT Through IDA in%													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Program Exit Survey	87.96	86.42	84.57	85.80	90.12	89.51	87.65	91.98	90.43	89.51	89.81	90.74	88.71	88.49
2	Alumni Survey	88.85	89.56	84.56	81.91	81.32	85	80.88	88.85	89.56	84.56	81.62	83.82	81.41	82.11
3	Employer Survey	85	89	86.25	85	82.5	92.5	87.5	92.5	85	87.5	82.5	88.85	89.56	84.56
4	Co-Curricular/ Extra Curricular Activities	88.85	89.56	84.56	84.56	85.17	84.22	83	86.33	83.86	85.44	78.67	83.83	83.33	85.29
	Average	87.67	88.64	84.99	84.32	84.78	87.81	84.76	89.92	87.21	86.75	83.15	86.81	85.75	85.11


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The summary results of Program Outcomes and Program Specific Outcome of the program through indirect direct assessment are shown in following Table-4

Table 4: Summary of PO's & PSO's Attainments through Indirect Assessment for 2019-23 batch

PO/PSO	PO ATTAINMET %THROUGH IDA	ATTAINED(YES/NO)
PO1	87.67	YES
PO2	88.64	YES
PO3	84.99	YES
PO4	84.32	YES
PO5	84.78	YES
PO6	87.81	YES
PO7	84.76	YES
PO8	89.92	YES
PO9	87.21	YES
PO10	86.75	YES
PO11	83.15	YES
PO12	86.81	YES
PSO1	85.75	YES
PSO2	85.11	YES

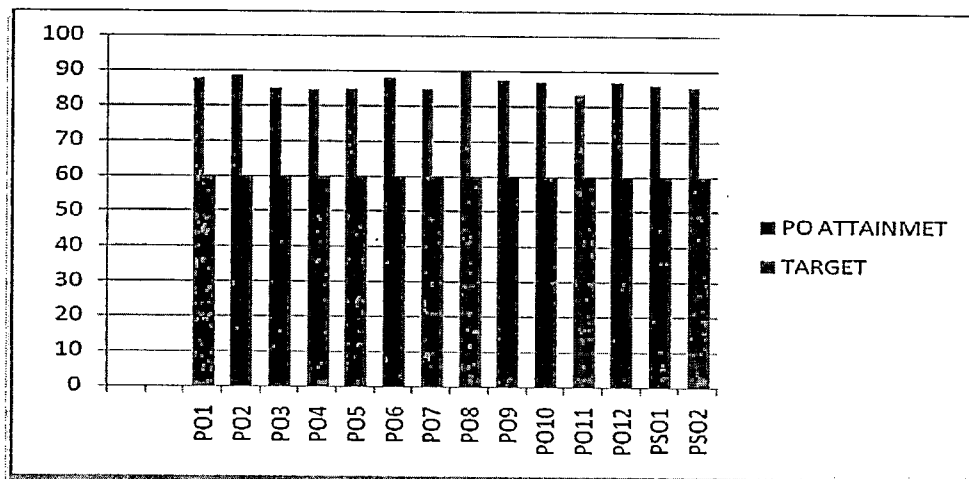


Figure 2: PO's & PSO's Attainments through Indirect Assessment for 2019-23 Batch

The summary results of PO's and PSO's indirect assessment of the program are shown in the Table-4 and in Figure-2. Target is specified as equal or greater than 60% and the target is achieved.

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➤ **Over all Attainments:**

The results of PO's and PSO's Attainment of the program through direct assessment and indirect assessment and summation of 20% of direct assessment and 80% of indirect assessment is shown in following Table-5

Table 5: Over all Attainments of Pos and PSOs through DA & IDA for 2019 -23 batch

PO/PSO	PO Attainment through Direct Assessment	PO Attainment through Indirect Assessment	Summation of 80% of DA and 20% of IDA	Target	Target Attained(YES/NO)
PO1	71.79%	87.67	74.97	60.00	YES
PO2	67.07%	88.64	71.38	60.00	YES
PO3	65.28%	84.99	69.22	60.00	YES
PO4	71.88%	84.32	74.37	60.00	YES
PO5	71.59%	84.78	74.23	60.00	YES
PO6	75.04%	87.81	77.59	60.00	YES
PO7	60.89%	84.76	65.66	60.00	YES
PO8	77.40%	89.92	79.90	60.00	YES
PO9	66.57%	87.21	70.70	60.00	YES
PO10	75.15%	86.75	77.47	60.00	YES
PO11	75.72%	83.15	77.21	60.00	YES
PO12	64.75%	86.81	69.16	60.00	YES
PSO1	60.69%	85.75	65.70	60.00	YES
PSO2	66.92%	85.11	70.56	60.00	YES

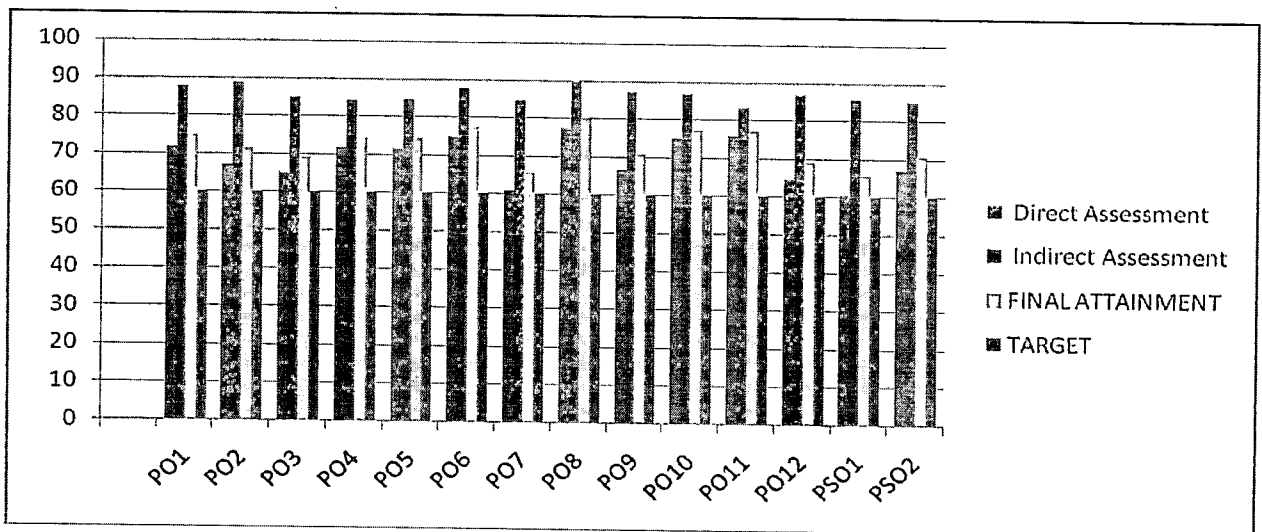


Figure 3: Over All PO's & PSO's Attainments For 2019-23 Batch

The summary results of PO's and PSO's Final Attainment of the program are shown in the Table-5 and in Figure-3. Target is specified as equal or greater than 60% and the target is achieved.

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