Record the Attainment of Course Outcomes of all Courses with Respect to Set Attainment Levels (20)

(Program shall set course outcome attainment levels for each course. Measuring CO attainment through Continuous Internal Examinations (CIE) and Semester End Examination (SEE) needs to be detailed.

Target may be stated in terms of percentage of students getting more than class averagemarksorsetbytheprogramineachoftheassociated COsintheassessment instruments (midterm tests, assignments, mini projects, reports and presentations etc. as mapped with the CO's.)

Measurement of CO Attainments

The attainment of Course Outcomes (COs) is measured by analysing student performance across various assessment components such as mid-term exams, assignments, and semester-end exams (SEE). Each question in the mid-term exams and assignments is explicitly mapped to specific COs, allowing for a detailed evaluation of student understanding concerning each outcome. However, as question-wise marks distribution in SEE is not available, the entire SEE assessment is considered as a holistic measure contributing equally to all COs of the course. The format adopted for data collection is presented in table below.

Table: Measurement of CO Attainments

S. No	Reg.No	MID Term Threshold 60%											ASSIGNMENT Threshold 70%					SEE Threshold 50%
		MI Q12	MI Q22	MI Q32	MI Q42	MI Q52	MI Q65	MI Q75	MI Q85	MI Q95	MI Q105	MI Q115	AI Q11	AI Q21	AI Q31	AI Q41	AI Q51	SEE (70M)
1	218R1A0401						4			5	2		1	1	1	1	1	10
2	218R1A0402					2	4			5	5	3	1	1	1	1	1	26
3	218R1A0403	2	2	1	2	2				2	5	4	1	1	1	1	1	13
4	218R1A0404	2	1	0	0	0	4		3	5	5	5	1	1	1	1	1	26
5	218R1A0405	2		1	1		5	4	5	5	1		1	1	1	1	1	25
6	218R1A0406	2	2	1	1	2		5		5	5	5	1	1	1	1	1	50

7	218R1A0407						1	2	0	1	5	3	1	1	1	1	1	9
8	218R1A0408	2	2	1	2	2	5		5	5		4	1	1	1	1	1	26
9	218R1A0409	2	1	2	1	1	5			5			1	1	1	1	1	27
10	218R1A0410	2			2		3	5					1	1	1	1	1	17
CO MAPPING		**CO1**	**CO1**	**CO2**	**CO3**	**CO3**	**CO1**	**CO1**	**CO2**	**CO2**	**CO3**	**CO3**	**CO1**	**CO1**	**CO2**	**CO2**	**CO3**	**All COs**
ATTAINMENT LEVELS		**3.0**	**3.0**	**2.0**	**2.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**1.0**

The attainment levels obtained in above table are categorized into three distinct levels: Level 1 (Low), Level 2 (Medium), and Level 3 (High). These levels are determined based on predefined performance benchmarks/ threshold levels, usually expressed as a percentage of students achieving a minimum required score in each CO-mapped assessment tool as presented in figure below.

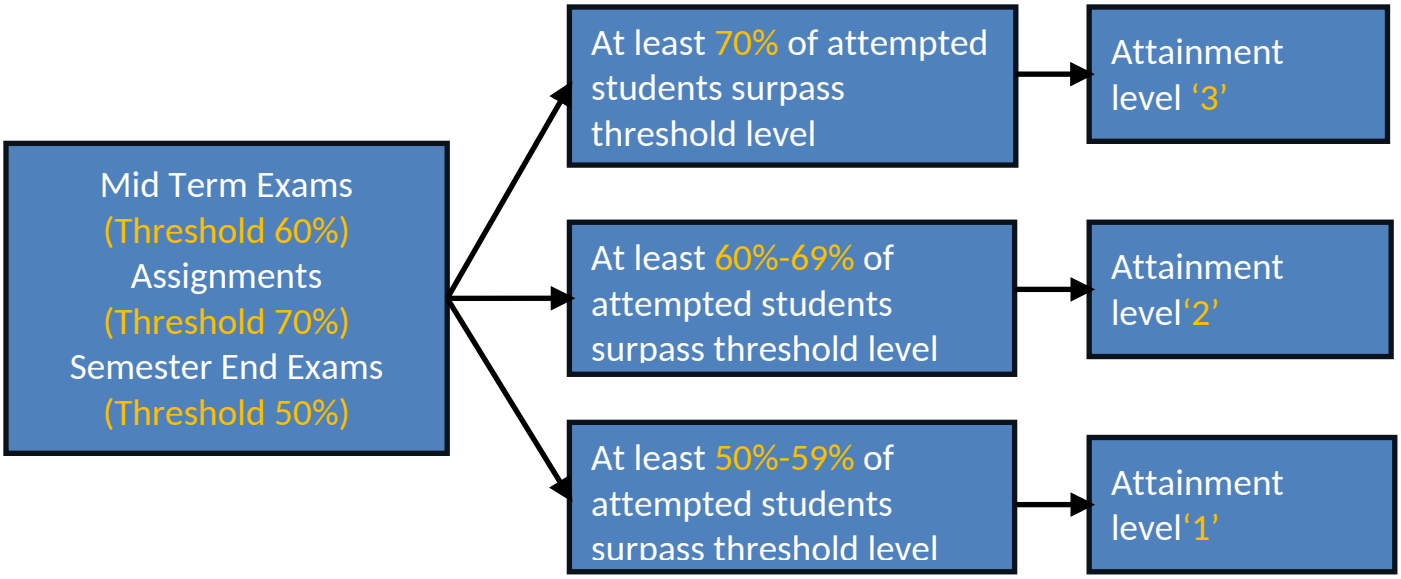

Figure: CO-mapped assessment tool

The attainment of Course Outcomes (COs) from Continuous Internal Evaluation (CIE) is determined by averaging the attainment levels of various CO-mapped assessment methods. Since the Semester End Examination (SEE) does not provide question-wise marks, its attainment level is distributed equally across all CO's.To compute the Direct CO Attainment, a weighted formula is used: **Direct CO Attainment = (40% of CO attainment from CIE) + (60% of CO attainment from SEE)**

In addition to direct assessment, Indirect CO Attainment is measured using various indirect assessment tools, evaluated through rubrics.

Final CO Attainment = (80% of Direct CO attainment) + (20% of Indirect CO attainment)

This weighted approach ensures a comprehensive evaluation of student learning outcomes, integrating both performance-based and perception-based assessments. The process of CO attainment calculation described above is presented in table below.

Table: The process of CO attainment calculation

ASSESSMENT OF CO's FOR THE COURSE								
DIRECT ASSESSMENT					INDIRECT ASSESSMENT			Final CO Attainment
thod	Value	CO Attainment CIE	CO Attainment SEE	Direct CO Attainment	Method	Value	Indirect CO Attainment	
Q1	3.0	3.00	1.00	1.80	P1	3	3	2.04
Q2	3.0				P2	3		
Q6	3.0				P3	3		
Q7	3.0				P4	3		
Q1	3.0				P5	3		
Q2	3.0				P6	3		
Q3	3.0	2.80	1.00	1.72	P1	3	3	1.98
Q8	3.0				P2	3		
Q9	3.0				P3	3		
Q3	3.0				P4	3		
Q4	3.0				P5	3		

Target for CO Attainment

The target level for Course Outcomes (CO's) attainment of a course is determined based on percentage of students who scored above the average marksof that course. This benchmark helps in assessing how effectively students have grasped the intended learning outcomes. If the predefined target is met, it indicates satisfactory student performance. However, if the target is not achieved, it highlights gaps in understanding and instructional effectiveness. Based on this analysis, educators can refine their teaching strategies, introduce new methodologies, and implement corrective actions in the next academic year to enhance student learning, engagement, and overall academic performance.

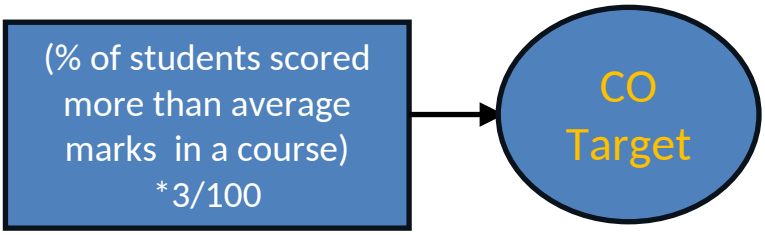

Figure: Target for CO Attainment

Attainment of Course Outcomes of all Courses

CO Attainments for 2024-25 Passed Out Batch								CO Average	CO Target	Target Achieved or Not
Course Code	Course Name	Course Outcomes (CO's)								
		CO1	CO2	CO3	CO4	CO5	CO6			
C111	Linear Algebra & Calculus (LAC)	1.33	1.29	0.60	0.60	1.45	1.35	1.10	1.57	**TARGET NOT ACHIEVED**
C112	Engineering Chemistry (EC)	2.04	1.93	1.99	2.04	1.88		1.98	1.58	TARGET REACHED
C113	Programming for Problem Solving (PPS)	1.47	1.45	1.56	1.56	1.56	1.56	1.53	1.52	TARGET REACHED
C114	Engineering Graphics (EG)	1.32	1.48	1.56	1.56	1.56		1.50	1.7	**TARGET NOT ACHIEVED**
C115	English (ENG)	3.00	3.00	3.00	2.87			2.97	1.88	TARGET ACHIEVED
C116	Engineering Chemistry Lab (EC LAB)	3.00	3.00	3.00	3.00	3.00		3.00	1.75	TARGET ACHIEVED
C117	Programming for Problem Solving Lab (PPS Lab)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.9	TARGET ACHIEVED
C118	English Language & Communication Skills Lab (ELCS Lab)	3.00	3.00	3.00				3.00	1.7	TARGET ACHIEVED
C121	Differential Equations & Vector Calculus (DEVC)	1.51	1.54	1.49	1.88	1.61		1.61	1.48	TARGET ACHIEVED
C122	Applied Physics (AP)	1.51	1.56	1.56	1.56	1.45		1.53	1.52	TARGET ACHIEVED
C123	Data Structures (DS)	1.95	1.91	2.04	1.96	2.04		1.98	1.72	TARGET ACHIEVED

C124	Basic Electrical Engineering (BEE)	1.56	1.56	1.56	1.56	1.43		1.53	1.53	TARGET ACHIEVED
C125	Engineering Workshop (EW)	3.00	3.00	3.00	3.00	3.00		3.00	1.98	TARGET ACHIEVED
C126	Applied Physics Lab (AP Lab)	3.00	3.00	3.00	3.00	3.00		3.00	1.85	TARGET ACHIEVED
C127	Data Structures Lab (DS Lab)	3.00	3.00	3.00	3.00	3.00		3.00	1.8	TARGET ACHIEVED
C128	Basic Electrical Engineering Lab (BEE Lab)	3.00	3.00	3.00	3.00	3.00		3.00	2.11	TARGET ACHIEVED
C211	Electronic Devices and Circuits (EDC)	2.52	2.49	2.52	2.52	2.52		2.51	1.66	TARGET REACHED
C212	Digital System Design (DSD)	1.00	1.20	1.44	1.56	1.56		1.35	1.28	TARGET REACHED
C213	Signals & Systems (SS)	1.56	1.56	1.35	1.35	1.56		1.48	1.38	TARGET REACHED
C214	Laplace Transforms, Numerical Methods & Complex Variables (LTNMCV)	1.20	1.20	1.20	1.20	1.20		1.20	1.56	TARGET REACHED
C215	Probability Theory & Stochastic Processes (PTSP)	2.04	2.04	2.04	2.04	2.04		2.04	1.60	TARGET REACHED
C216	Electronic Devices and Circuits Lab (EDC Lab)	2.96	2.97	2.96	2.95	2.95	2.97	2.96	1.99	TARGET REACHED
C217	Digital System Design Lab (DSD Lab)	2.97	2.96	2.95	2.95	2.96		2.96	1.97	TARGET REACHED
C218	Signals & Systems Lab (SS Lab)	2.95	2.95	2.95	2.97	2.95		2.95	1.93	TARGET REACHED
C219	Environmental Science (ES)	3.00	3.00	3.00	3.00	3.00		3.00	1.82	TARGET REACHED
C221	Networks Analysis & Transmission Lines (NATL)	2.52	2.52	2.46	2.52	2.52		2.51	1.64	TARGET REACHED
C222	Analog & Digital	2.04	2.04	1.96	2.04	1.88		1.99	1.59	TARGET

	Communications (ADC)									REACHED
C223	Linear IC Applications (LICA)	2.52	2.52	2.52	2.52	2.52		2.52	1.60	TARGET REACHED
C224	Electronic Circuit Analysis (ECA)	2.84	3.00	3.00	3.00	2.40		2.85	1.54	TARGET REACHED
C225	Control Systems (CS)	3.00	3.00	3.00	3.00	3.00		3.00	1.74	TARGET REACHED
C226	Analog & Digital Communications Lab (ADC Lab)	2.94	2.97	2.96	2.95	2.95		2.95	1.89	TARGET REACHED
C227	IC Applications Lab (ICA Lab)	2.95	2.96	2.96	2.96	2.96		2.96	1.89	TARGET REACHED
C228	Electronic Circuit Analysis Lab (ECA Lab)	2.91	2.93	2.95	2.92	2.93		2.93	1.77	TARGET REACHED
C229	Gender Sensitization Lab (GS Lab)	2.80	2.70	2.80	2.73	2.75		2.76	1.70	TARGET REACHED
C311	Business Economics & Financial Analysis (BEFA)	1.20	1.20	1.20	1.20	1.20		1.20	1.60	**TARGET NOT ACHIEVED**
C312	Microprocessors & Microcontrollers (MPMC)	2.40	2.31	2.40	3.00	3.00		2.62	1.82	TARGET REACHED
C313	Digital Signal Processing (DSP)	2.52	2.52	2.52	2.52	2.52		2.52	1.73	TARGET REACHED
C314	Electromagnetic Fields & Waves (EMFW)	3.00	2.95	3.00	3.00	3.00		2.99	1.70	TARGET REACHED
C315	Digital Image & Video Processing (DIVP)	3.00	3.00	3.00	3.00	3.00		3.00	1.86	TARGET REACHED
C316	Microprocessors & Microcontrollers Lab (MPMC Lab)	2.96	2.95	2.97	2.95	2.95		2.96	1.76	TARGET REACHED
C317	Digital Signal Processing Lab (DSP Lab)	2.95	2.93	2.92	2.94	2.93		2.93	2.08	TARGET REACHED
C318	Advanced Communication Skills Lab (ACS Lab)	2.95	2.95	2.95	2.96	2.95		2.95	1.64	TARGET REACHED

C319	Constitution of India (COI)	3.00	3.00	3.00	3.00	3.00		3.00	1.40	TARGET REACHED
C321	Embedded System Design (ESD)	3.00	3.00	3.00	3.00	3.00		3.00	1.70	TARGET REACHED
C322	Antennas & Wave Propagation (AWP)	2.52	2.52	2.52	2.52	2.52		2.52	1.60	TARGET REACHED
C323	VLSI Design (VLSID)	3.00	2.40	3.00	2.40	3.00		2.76	1.69	TARGET REACHED
C324	FPGA Programming (FPGAP)	2.52	2.46	2.39	1.92	1.87		2.23	1.70	TARGET REACHED
C325	Java Programming (JAVAP)	1.80	1.80	1.80	1.80	1.80		1.80	1.75	TARGET REACHED
C326	Scripting Languages Lab (SL Lab)	2.95	2.95	2.95	2.96			2.95	1.82	TARGET REACHED
C327	ECAD Lab	2.94	2.95	2.95	2.97	2.95		2.95	1.77	TARGET REACHED
C328	Intellectual Property Rights (IPR)	3.00	3.00	3.00	3.00	3.00		3.00	1.79	TARGET REACHED
C329	Cyber Security (CSY)	3.00	3.00	3.00	3.00	3.00		3.00	1.58	TARGET REACHED
C411	Data Communications & Networks (DCN)	1.56	1.56	1.56	1.56	1.56		1.56	1.48	TARGET REACHED
C412	Microwave Engineering (MWE)	1.56	1.56	1.56	1.56	1.56		1.56	1.39	TARGET REACHED
C413	Python Programming (PP)	1.73	1.74	1.73	1.60	1.64		1.69	1.76	TARGET REACHED
C414	Wireless Communication Networks (WCN)	2.04	2.04	2.04	2.04	2.04		2.04	1.56	TARGET REACHED
C415	Electronic Measurements & Instrumentation (EMI)	1.56	1.56	1.56	1.56	1.56		1.56	1.39	TARGET REACHED
C416	Digital CMOS IC Design (DCID)	2.38	2.52	2.47	2.25	2.52		2.43	1.69	TARGET REACHED
C417	Data	2.96	2.96	2.97	2.95	2.95		2.96	1.69	TARGET

	Communications & Networks Lab (DCN Lab)									REACHED
C418	Microwave Engineering Lab (MWE Lab)	2.94	2.95	2.97	2.95	2.95		2.95	1.96	TARGET REACHED
C419	Industry Oriented Mini Project/ Summer Internship (IOMP)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.74	TARGET REACHED
C41A	Project Stage – I (PSI)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.51	TARGET REACHED
C41B	Artificial Intelligence (AI)	3.00	3.00	3.00	3.00	3.00		3.00	1.63	TARGET REACHED
C421	Software Testing Methodologies (STM)	1.20	1.20	1.20	1.20	1.20		1.56	1.68	TARGET NOT ACHIEVED
C422	Network Security & Cryptography (NSC)	1.56	1.56	1.56	1.56	1.56		1.56	1.67	TARGET NOT ACHIEVED
C423	Global Positioning System (GPS)	1.56	1.56	1.56	1.56	1.56		1.56	1.47	TARGET REACHED
C424	Seminar	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.30	TARGET REACHED
C425	Project Stage – II (PSII)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.96	TARGET REACHED

Table: Attainment of Course Outcomes

Attainment of Program Outcomes and Program Specific Outcomes (25)

(The attainment of Pos and PSOs by direct assessment based on student performance and indirect assessment based on surveys are to be presented through program level Course-PO&PSO matrices as indicated.)

The assessment of Program Outcomes (POs) and Program-Specific Outcomes (PSOs) is carried out using a well-defined set of assessment tools to ensure a comprehensive evaluation of students' knowledge, skills, and competencies. These assessment tools help in measuring the extent to which the desired educational objectives are achieved and identifying areas for improvement.

PO Assessment Tools

The assessment tools used for assessment of Program Outcomes are presented in flow chart below.

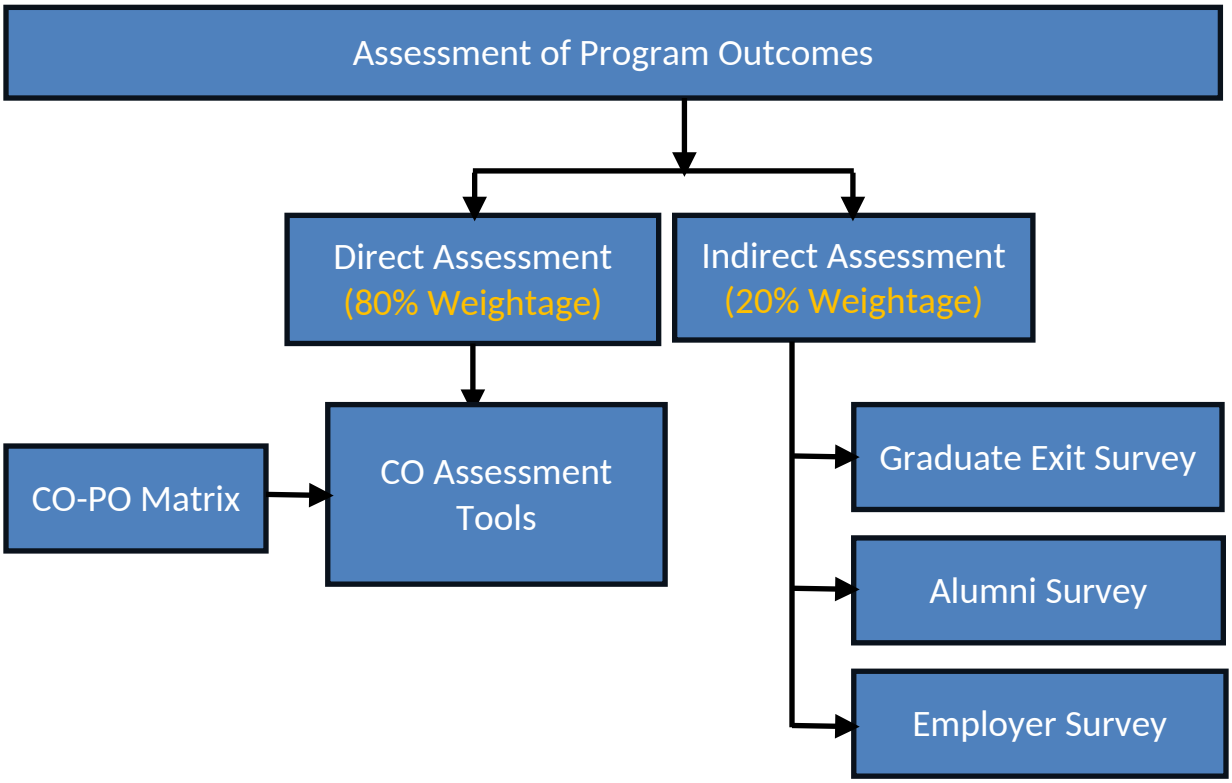

Fig: PO Assessment Tools

i. Direct Assessment Tools(80% Weightage)

Direct assessment tools involve objective measures that evaluate students' actual performance based on assessment methods adopted for CO assessment and CO-PO articulation matrix. These assessments provide concrete evidence of learning and are aligned with predefined criteria.

ii. **Indirect Assessment Tools (20% Weightage)**

Indirect assessment tools play a crucial role in evaluating the effectiveness of an academic program by gathering qualitative and quantitative feedback from various stakeholders. Unlike direct assessment tools that measure students' actual performance, indirect tools focus on perceptions, experiences, and overall satisfaction with the learning process. These tools provide valuable insights into how well the curriculum

prepares students for real-world challenges and helps in identifying areas for improvement.
Following surveys are conducted as a part of indirect PO assessment,

a. **Graduate Exit Survey**, which captures students' reflections on their learning journey at the time of graduation day. It allows students to share feedback on course content and overall satisfaction with the program. This helps institutions assess whether learning objectives have been met from the students' perspective.
b. **Alumni Survey** is another essential tool that evaluates how well the program has prepared graduates for their careers. It gathers feedback at time of alumni meet on employability, skill applicability, industry relevance, and career growth, offering insights into the long-term impact of education.
c. **Employer Survey** collects feedback from industry professionals at the time of campus placement drives regarding graduates' competencies, workplace readiness, and technical and soft skills. This helps institutions align their curriculum with industry needs, ensuring students are better prepared for professional success.

Measurement of PO Attainments

The attainment of Program Outcomes (POs) contributed by course outcome of a course is measured by analysing student performance across various CO assessment components such as mid-term exams, assignments, and semester-end exams (SEE). Each CO of a course is mapped to one or more PO's based on performance indicators and graduate competencies. This value of direct PO attainment is calculated as average of CO attainment values of CO's mapped to that PO as shown in table below

Table : Measurement of PO Attainments

Assessment Of PO's & PSO's Through The Course			
PO	**CO**	**CO Attainment**	**PO Attainment**
PO1	CO1	2.04	1.82
	CO2	1.98	
	CO3	1.56	
	CO4	1.98	
	CO5	1.56	
PO2	CO1	2.04	1.84
	CO2	1.98	
	CO3	1.56	
	CO4	2.04	
	CO5	1.56	

From the above table, attainment level of each PO and PSO is determined for a particular course. This way for all the courses under direct assessment, the PO attainment levels are determined. The overall attainment level of each PO and PSO is obtained by taking the average value of the mapped courses PO's / PSO's attainment levels. The following table illustrates the process.

Table: Average value of the mapped courses PO's attainment levels

Course Code	Program Outcomes (PO's)											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO10**	**PO11**

C111	1.45	1.45	1.40	1.45								
C112	1.91	1.91	1.91		1.91							
C113	1.93	1.93	1.93		1.93							
C114	1.99									1.99		
C421	2.04	2.04	2.04	2.04	2.04	2.04						2.04
C422	3.00	3.00	3.00	3.00	3.00				3.00			
C423	2.04	2.04			2.04							2.04
C424	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct PO	**2.18**	**2.12**	**2.18**	**2.14**	**2.27**	**2.36**	**2.25**	**2.76**	**2.52**	**2.51**	**2.34**	**2.16**

Each PO/ PSO attainment using indirect assessment tools is the average of all attainment values obtained from survey forms like graduate exit survey, alumni survey and employer survey.

The final PO attainment value of each PO/ PSO is calculated by giving 80% weightage to direct PO attained values and 20% weightage to indirect PO attained values.

Final PO Attainment = (80% of Direct PO attainment) + (20% of Indirect PO attainment)

Target for PO Attainment

The process adopted for fixing the target for each of the program outcomes is shown in figure below.

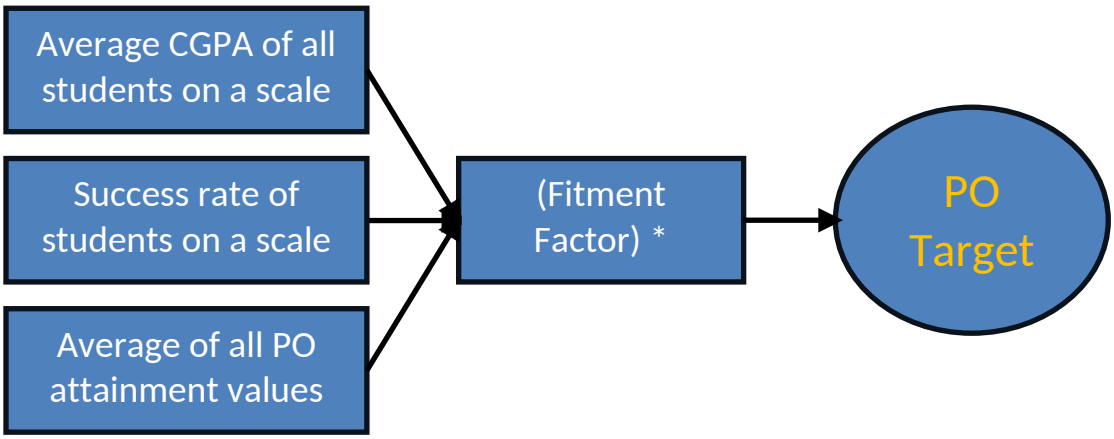

Figure: Target for PO Attainment

Attainment of Program Outcomes of all Courses

Table: PO attainment value using direct assessment tools

Following tools are adapted in calculating PO target value.

Course Code	Course Name	Program Outcomes (PO's)										
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C111	Linear Algebra & Calculus (LAC)	1.10	1.10									1.10
C112	Engineering Chemistry (EC)	1.98	1.98									
C113	Programming for Problem Solving (PPS)	1.50	1.50	1.50	1.50	1.50						
C114	Engineering Graphics (EG)	1.50	1.50	1.50		1.50						
C115	English (ENG)								2.97	2.97		
C116	Engineering Chemistry Lab (EC LAB)	3.00	3.00	3.00								
C117	Programming for Problem Solving Lab (PPS Lab)	3.00	3.00	3.00		3.00			3.00			
C118	English Language & Communication Skills Lab (ELCS Lab)					3.00			3.00	3.00		3.00
C121	Differential Equations & Vector Calculus (DEVC)	1.61	1.61		1.61							
C122	Applied Physics (AP)	1.53	1.53	1.53								
C123	Data Structures (DS)	1.98	1.97	1.97	1.99	1.98						
C124	Basic Electrical Engineering (BEE)	1.53	1.53	1.53	1.53							1.53
C125	Engineering Workshop (EW)	3.00	3.00	3.00		3.00			3.00			
C126	Applied Physics Lab (AP Lab)	3.00	3.00	3.00		3.00			3.00			
C127	Data Structures Lab (DS Lab)	3.00	3.00			3.00			3.00			
C128	Basic Electrical Engineering Lab (BEE Lab)	3.00	3.00	3.00		3.00			3.00			
C211	Electronic Devices and Circuits (EDC)	2.51	2.51	2.51	2.49							
C212	Digital System Design (DSD)	1.65	1.35	1.35	1.35							
C213	Signals & Systems (SS)	1.48	1.48	1.48	1.48							
C214	Laplace Transforms, Numerical Methods & Complex Variables (LTNMCV)	1.20	1.20		1.20							
C215	Probability Theory & Stochastic Processes (PTSP)	2.04	2.04	2.04	2.04							
C216	Electronic Devices and Circuits Lab (EDC Lab)	2.96	2.96	2.96	2.96	2.96			2.96			

C217	Digital System Design Lab (DSD Lab)	2.96	2.96	2.96	2.96	2.96			2.96			
C218	Signals & Systems Lab (SS Lab)	2.95	2.95	2.95	2.95	2.95			2.95			
C219	Environmental Science (ES)	3.00		3.00				3.00	3.00	3.00		
C221	Networks Analysis & Transmission Lines (NATL)	2.51	2.51	2.51	2.51							
C222	Analog & Digital Communications (ADC)	1.99	1.99	1.99	1.99							
C223	Linear IC Applications (LICA)	2.52	2.52	2.52	2.52	2.52						2.52
C224	Electronic Circuit Analysis (ECA)	2.85	2.85	2.85	2.85							
C225	Control Systems (CS)	3.00	3.00	3.00	3.00							
C226	Analog & Digital Communications Lab (ADC Lab)	2.95	2.95	2.95	2.95	2.95			2.95			
C227	IC Applications Lab (ICA Lab)	2.96	2.96	2.96	2.96	2.96			2.96			
C228	Electronic Circuit Analysis Lab (ECA Lab)	2.76	2.76	2.80	2.77	2.77				2.78	2.77	
C229	Gender Sensitization Lab (GS Lab)								3.00		3.00	
C311	Business Economics & Financial Analysis (BEFA)		1.20								1.20	
C312	Microprocessors & Microcontrollers (MPMC)	2.62	2.62	2.62	2.62		2.62					
C313	Digital Signal Processing (DSP)	2.52	2.52	2.52	2.52							
C314	Electromagnetic Fields & Waves (EMFW)	2.99	2.99	2.99	2.99							
C315	Digital Image & Video Processing (DIVP)	3.00	3.00	3.00	3.00							3.00
C316	Microprocessors & Microcontrollers Lab (MPMC Lab)	2.96	2.96	2.96	2.96	2.96	2.96		2.96			
C317	Digital Signal Processing Lab (DSP Lab)	2.93	2.93	2.93	2.93	2.93			2.93			
C318	Advanced Communication Skills Lab (ACS Lab)					2.95			2.95	2.95		
C319	Constitution of India (COI)								3.00		3.00	
C321	Embedded System Design (ESD)	3.00	3.00	3.00	3.00		3.00					3.00
C322	Antennas & Wave Propagation (AWP)	2.52	2.52	2.52	2.52							

C323	VLSI Design (VLSID)	2.76	2.76	2.76	2.76							
C324	FPGA Programming (FPGAP)	2.23	2.23	2.47	2.23							2.23
C325	Java Programming (JAVAP)	1.80	1.80	1.80	1.80							1.80
C326	Scripting Languages Lab (SL Lab)	2.95	2.95	2.95		2.95			2.95			
C327	ECAD Lab	2.95	2.95	2.95		2.95						
C328	Intellectual Property Rights (IPR)								3.00		3.00	3.00
C329	Cyber Security (CSY)	3.00	3.00			3.00						
C411	Data Communications & Networks (DCN)	1.56	1.56	1.56	1.56							1.56
C412	Microwave Engineering (MWE)	1.56	1.56	1.56								
C413	Python Programming (PP)	1.69	1.69	1.69								1.69
C414	Wireless Communication Networks (WCN)	2.04	2.04	2.04	2.04							2.04
C415	Electronic Measurements & Instrumentation (EMI)	1.56	1.56	1.56								
C416	Digital CMOS IC Design (DCID)	2.52	2.52	2.52	2.52	2.52				2.52	2.52	2.43
C417	Data Communications & Networks Lab (DCN Lab)	2.96	2.96	2.96	2.96	2.96			2.96			2.96
C418	Microwave Engineering Lab (MWE Lab)	2.95	2.95	2.95	2.95	2.95			2.95			
C419	Industry Oriented Mini Project/ Summer Internship (IOMP)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
C41A	Project Stage – I (PSI)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
C41B	Artificial Intelligence (AI)	3.00	3.00			3.00						
C421	Software Testing Methodologies (STM)	1.20	1.20	1.20	1.20							
C422	Network Security & Cryptography (NSC)	1.56	1.56		1.56							1.56
C423	Global Positioning System (GPS)	1.56	1.56									1.56
C424	Seminar	3.00	3.00		3.00	3.00			3.00	3.00		3.00
C425	Project Stage – II (PSII)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

1. Student results of current assessment year
2. Success rate of current assessment year
3. Program Outcome average of current assessment year

1. **Student results of current assessment year:**
   CGPA grade point 'X' is calculated by considering the current assessment year student results as described below.
   i. Calculate the sum of CGPA scores of all the successful graduates of current assessment year.
   ii. Divide the above obtained CGPA sum with number of successful graduates, which will be CGPA grade points on a scale of 10.
   iii. Calculate CGPA grade points on a scale of 3 from CGPA grade points on a scale of 10.
   iv. Consider this grade point as X.

2. **Success rate of current assessment year:**
   CGPA grade point 'Y' is calculated by considering the current assessment year success rate as described below.
   i. Consider the successful graduates and total number of students attempted final semester examination of current assessment year.
   ii. Success rate = Number of successful graduates / Total number of students attempted final year examination
   iii. Grade point Y = Success rate * 3

3. **Program Outcome average of current assessment year:**
   CGPA grade point 'Z' is calculated by considering the current assessment year average PO value as described below.
   i. Consider the PO attainment values of the current assessment year.
   ii. Grade point Z = Average of all the PO attainment values of the current assessment year.

The final PO target value is calculated as,

PO Target = Fitment Factor * (X + Y + Z) /3

Where Fitment Factor is average of scale points (on a scale of 3) taken as feedback from differentstake holders like Employers and Alumni.

This benchmark helps in assessing how effectively students have grasped the intended program outcomes. If the predefined target is met, it indicates satisfactory student performance. However, if the target is not achieved, it highlights gaps in assessment methods and instructional effectiveness. Based on this analysis, educators can refine content delivery methods and assessment methods for the next academic year.

Attainment of Program Specific Outcomes of all Courses

Table: PSO attainment value using direct assessment tools

Course Code	Program Specific Outcomes (PSO's)	
	PSO1	PSO2
C111		
C112		
C113		1.45
C114		
C115		
C116		
C117	3.00	3.00
C118		
C121		
C122		
C123	1.95	1.99
C124	1.56	1.53
C125	3.00	
C126		
C127		3.00
C128	3.00	3.00
C211	2.51	2.51
C212	1.53	1.50
C213	1.48	1.48
C214		
C215	2.04	
C216	3.00	3.00
C217	3.00	3.00
C218	3.00	3.00
C219		
C221	2.51	2.51
C222	1.99	1.99
C223	2.52	2.52

C224	2.97	2.97
C225		
C226	3.00	3.00
C227	3.00	3.00
C228	3.00	3.00
C229		
C311		
C312	2.98	2.98
C313	2.52	2.52
C314	2.99	2.99
C315	3.00	3.00
C316	3.00	3.00
C317	3.00	3.00
C318		
C319		
C321	3.00	3.00
C322	2.52	
C323	3.00	3.00
C324	2.47	2.47
C325	2.04	2.04
C326	3.00	3.00
C327	3.00	3.00
C328		
C329		
C411	1.56	1.56
C412	1.56	1.56
C413	1.95	1.95
C414	2.04	2.04
C415	1.56	1.56
C416	2.43	2.43
C417	3.00	3.00
C418	3.00	3.00

C419	3.00	3.00
C41A	3.00	3.00
C41B		
C421	1.56	1.56
C422	1.56	1.56
C423	1.56	1.56
C424	3.00	3.00
C425	3.00	3.00
Direct PSO Attainment	**2.55**	**2.58**

Table: PO and PSO attainment value using indirect assessment tools

S.No	**Surveys**	**Program Outcomes (PO's)**											
		PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PSO 1**	**PSO 2**
1	**Graduate Exit Survey**	2.87	2.78	2.64	2.82	2.54	2.26	2.30	2.44	2.51	2.69	2.23	2.87	2.78
2	**Employer Survey**	2.73	2.62	2.58	2.78	2.65	2.46	2.32	2.42	2.52	2.67	2.45	2.73	2.62
3	**Alumni Survey**	2.86	2.78	2.67	2.82	2.62	2.33	2.45	2.52	2.62	2.72	2.47	2.86	2.78
Indirect PO/ PSO		**2.78**	**2.82**	**2.73**	**2.63**	**2.81**	**2.60**	**2.35**	**2.36**	**2.46**	**2.55**	**2.69**	**2.38**	**2.82**

Table: Overall PO and PSO attainment value

Assessment / PO/ PSO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PSO 1**	**PSO 2**
Direct Attainment	2.44	2.45	2.46	2.46	2.49	2.39	2.40	2.56	2.64	2.47	2.48	2.44	2.45
Indirect Attainment	2.78	2.82	2.73	2.63	2.81	2.60	2.35	2.36	2.46	2.55	2.69	2.38	2.82
Overall Attainment	2.51	2.52	2.51	2.49	2.55	2.43	2.39	2.52	2.60	2.49	2.52	2.43	2.52
PO Target	**2.3**												