



Criteria 2.6. Student Performance and Learning Outcomes

2.6.1 The institution has stated learning outcomes (Program and Course outcomes), graduate attributes, which are integrated into the assessment process and widely published through the website and other documents, and the attainment of the same is evaluated by the institution

Attainment calculation procedure

--Report on CO-PO Calculation Procedure

Introduction

The Course Outcome (CO) to Program Outcome (PO) mapping is a crucial aspect of academic quality assurance, especially for accreditation purposes. This report outlines a systematic procedure to calculate CO-PO attainment using assessment data, surveys, and predefined mappings. An example with 9 students is used for illustration, and screenshots of relevant data and calculations are provided.

Procedure for CO-PO Calculation

Step 1: Data Collection

Assessment data is gathered from multiple sources, such as:

Direct Source:

- Assignments
- Mid Term Exam
- Group Projects or Presentations
- End-Term Examinations

Indirect Source:

- Course Exit Survey

Table 1. Course attainment Levels.

Assessment Methods	Attainment Levels	
Final Grade	Level 1	Less than 50% students scoring more than average % marks.
	Level 2	50% to less than 60% students scoring more than average % marks.
	Level 3	more than 60% students scoring more than average % marks in internal assessment tools

For example, the data from the "Mid Term" sheet is shown below:

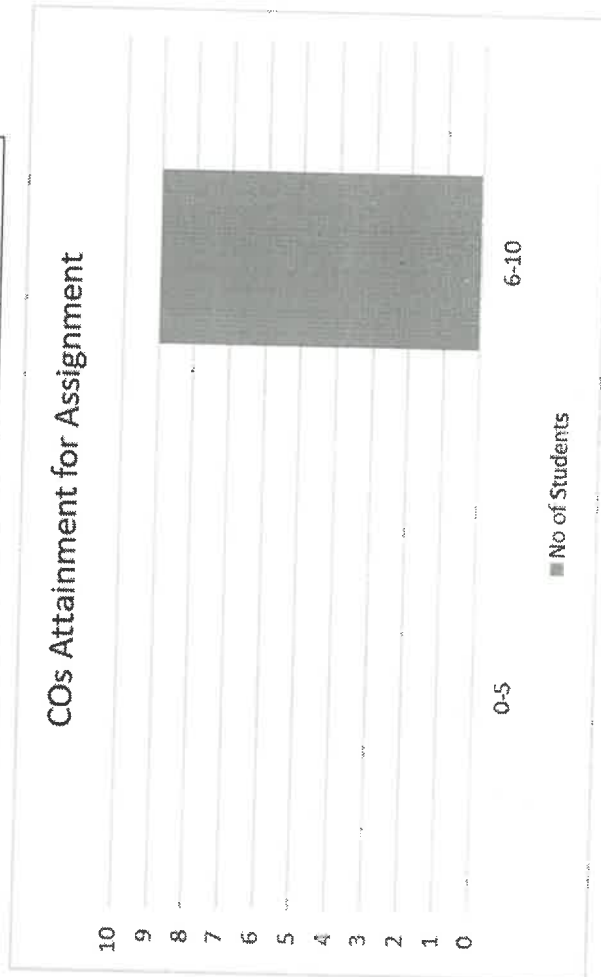
SUSHANT UNIVERSITY													
School of Business													
Assignment (Odd Semester 2024-25)													
Program:	BBA	Semester :	V	Assignment Date:	12.09.2024								
Course Code:	22BBA-0BI31E	Course Name		Data Analysis in Excel		Faculty Name:		Ms. Farhana Mariyam					
S. No.	Enrolment No.	Student Name	Batch No	Q1(5)	Q2(5)	Q3(5)	Q4(5)	Attainment		Total Marks (10)			
				CO1	CO2	CO1	CO2	CO1 (5)	CO2 (5)				
1	220BBA001	Suyash Aggarwal	2022-2025	4	4	4	4	4	4	8			
2	220BBA004	Harsh Goswami	2022-2025	5	5	5	5	5	5	10			
3	220BBA010	Pavneet Kaur	2022-2025	5	5	5	5	5	5	10			
4	220BBA028	Shubham Khatana	2022-2025	4	3	3	3	4	3	7			
5	220BBA035	Vansh Bhardwaj	2022-2025	5	5	5	5	5	5	10			
6	220BBA041	Parag Yadav	2022-2025	4	3	3	3	4	3	7			
7	220BBA065	Pramish Upreti	2022-2025	5	5	5	5	5	5	10			
8	220BBA066	Ritik Tomar	2022-2025	4	5	5	4	5	5	10			
9	220BBA073	Sagar Dahiya	2022-2025	4	3	3	3	4	3	7			
Total Students										9			
Average										4.56			
Assignment 1 (N)										4			
Total Students Appeared										9			



Number of students scored average% and above marks (P)				
		5	5	
CO attainment (P/N)*100				
		55.56%	55.56%	

Average Marks	Max Marks	Min. Marks	Std Deviation	Less than 40%	More than 90%
9	10	7	1.40	0.00%	55.6%

Marks of students	0-5	6--10
No. of students	0	9



Step 2: CO Mapping

Each assessment component contributes to specific Course Outcomes (COs). Weightages are assigned based on the relative importance of the assessment. These weightages are predefined and reflected in the "CO Direct Attainment" sheet, which aggregates scores from all assessments:

Step 3: Direct Attainment Calculation

Direct attainment is calculated using the weighted averages of the scores from various assessments. The formulae for these calculations are embedded in the file and reflect:

Where *Score*, is the student's score in the assessment contributing to the CO, and *Weightage* is the corresponding weight.

SUSHANT UNIVERSITY						
School of Business						
Result Analysis (Even Semester 2023-24)						
22BBA-0DA31C	BBA		Semester	V		
Course Name:	Introduction to Business Intelligence		Course Code:	22BBA-0BI31E		
Faculty Name:	Ms. Farhana Mariyam		Date of Analysis:	24.12.24		
Consolidated CO Attainment (Internal)						
Mid term 15 : Assignment/Presentation 25						
COs	Assessment Tools				Total	
	Mid-Term	Assignment	Group Project/Presentation			
CO1	3	2				0.65
CO2	3	2				0.65
CO3			3			0.45
CO4			3			0.45



SUSHANT UNIVERSITY				
School of Business				
Result Analysis (Odd Semester 2024-25)				
22BBA-0DA31C	BBA	Semester	V	
Course Name:	Introduction to Business Intelligence	Course Code:	22BBA-0BI31E	
Faculty Name:	Ms. Farhana Mariyam	Date of Analysis:	24.12.24	
Consolidated CO Attainment (Internal+External)				
Internal 40 : External 60				
COs	Internal (Mid term+Assignment+Presentation)	End Term (ESE)	Total	
CO1	0.6	3	2.04	
CO2	0.6	3	2.04	
CO3	0.45	3	1.98	
CO4	0.45	3	1.98	

For (Internal) General	
Assessment	Marks
For Mid Term	15
For Assignment	10
Quiz presentation	10



Step 4: Indirect Attainment Calculation

Indirect attainment is derived from surveys, reflecting students' perceived achievement of the COs. These are combined with direct attainment to calculate overall CO attainment.

School of Business, Sushant University, Gurugram										
Academic Year - Odd Semester 2024-25										
Course Exit Survey										
Program:	BBA								Sem:	V
Course Name:	Introduction to Business Intelligence								Course Code:	22BBA-0BI31E
Faculty Name:	Ms. Farhana Mariyam								Date of Survey:	24.12.24
Student Full Name	CO1		CO2		CO3		CO4			
	Course Exit survey parameter1	Attainment of CO1	Course Exit survey parameter2	Attainment of CO2	Course Exit survey parameter3	Attainment of CO3	Course Exit survey parameter4	Attainment of CO4		
Suyash Aggarwal	Excellent	20	Excellent	20	Excellent	20	Excellent	20		
Harsh Goswami	Excellent	20	Excellent	20	Good	12	Excellent	20		
Pavneet Kaur	Very Good	16	Excellent	20	Excellent	20	Excellent	20		
Shubham Khatana	Excellent	20	Very Good	16	Very Good	16	Excellent	20		
Vansh Bhardwaj	Very Good	16	Excellent	20	Excellent	20	Excellent	20		
Parag Yadav	Excellent	20	Very Good	16	Excellent	20	Excellent	20		

Pramish Upreti	Excellent	20	Very Good	16	Excellent	20	Excellent	20
Ritik Tomar	Excellent	20	Very Good	16	Excellent	20	Excellent	20
Sagar Dahiya	Excellent	20	Excellent	20	Very Good	16	Excellent	20
Average								
No of students >=Avg		19.11		18.22		18.22		19.56
Total students		7		5		6		8
Attainment Level (%)		9		9		9		9
Attainment Level		77.78%		55.56%		66.67%		88.89%
		3		3		3		3

Assessment Methods	Attainment Levels		
	Level1	Less than 50% students scoring more than average% marks.	
	Level2	50% to less than 60% students scoring more than average % marks.	
	Level3	More than 60% students scoring more than average % marks in internal assessment tools	



SUSHANT UNIVERSITY				
School of Business				
CO Attainment				
Program:	BBA	Semester	V	
Course Name:	Introduction to Business Intelligence	Course Code:	22BBA-0BI31E	
Faculty Name:	Farhana Mariyam	Date of Analysis:	24.12.24	
COs	Direct (80%)	Indirect (20%)	Total (100%)	
CO1	2.04	3	2.23	
CO2	2.04	3	2.23	
CO3	1.98	3	2.18	
CO4	1.98	3	2.18	

Step 5: PO Mapping

Each CO is mapped to specific POs and PSOs with predefined weightages, which are documented in the "PO-PSO Attainment" sheet. An example of this mapping is shown below:

Step 6: Attainment Levels

The overall attainment for each PO is calculated as a weighted sum of the CO contributions. This is summarized in the "PO-PSO Attainment" sheet.



SUSHANT UNIVERSITY

School of Business

CO-PO-PSO Mapping

Program:	BBA	Sem:	V
Course Name:	Introduction to Business Intelligence		
Faculty Name:	Ms. Farhana Mariyam	Course Code:	22BBA-0BI31E
		Date of Analysis:	24.12.24

Course Outcomes (COs)	Program Outcomes (POs)						Program Specific Outcomes (PSOs)					
COs	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	3	3	2	2	2	2	2	3	2	2
CO2	3	2	2	3	3	2	1	2	2	2	3	2
CO3	3	3	3	3	3	3	2	2	3	2	3	2
CO4	3	2	3	2	3	3	2	2	2	3	3	2

1=Lightly mapped 2= Moderately mapped 3=Strongly mapped

Course Outcomes (COs)	Program Outcomes (POs)						Program Specific Outcomes (PSOs)					
COs	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1=2.23	6.696	4.464	6.696	6.696	4.464	4.464	4.464	4.464	4.464	6.696	4.464	4.464
CO2=2.23	6.696	4.464	4.464	6.696	6.696	4.464	2.232	4.464	4.464	4.464	6.696	4.464
CO3=2.18	6.552	6.552	6.552	6.552	6.552	6.552	4.368	4.368	6.552	4.368	6.552	4.368
CO4=2.18	6.552	4.368	6.552	4.368	6.552	6.552	4.368	4.368	4.368	6.552	6.552	4.368
Attainment	2.21	2.21	2.21	2.21	2.21	2.20	2.20	2.21	2.21	2.21	2.21	2.21



Conclusion

This procedure ensures a structured approach to CO-PO attainment calculation, integrating both direct and indirect measures. By using systematic mapping and aggregation, institutions can effectively monitor and enhance the alignment of course outcomes with program objectives.

✓

Dr. Jyoti Chavhan
Dean, Quality Assurance
Sushant University
Gurgaon

