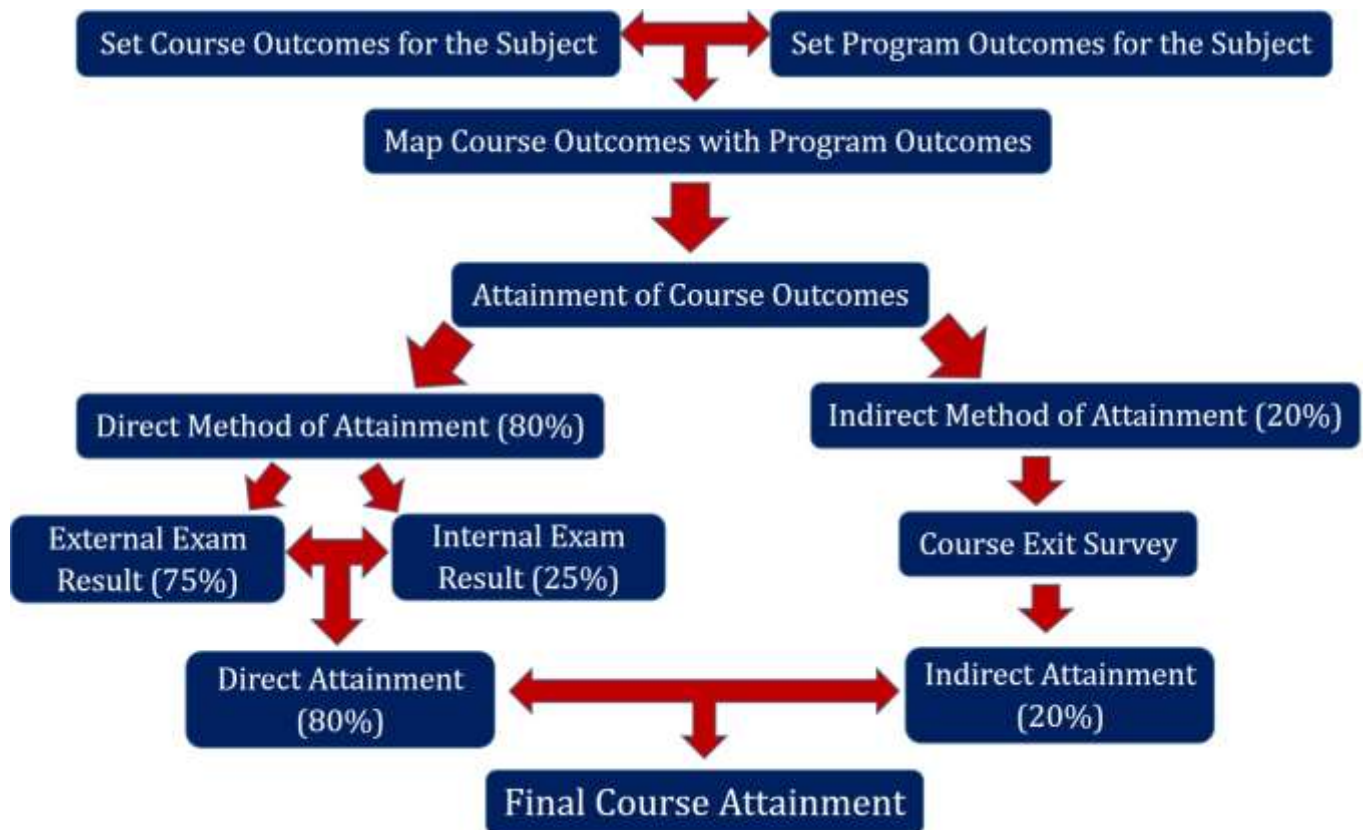


Steps for Attainment of Course Outcomes



Case Study

Class	First Year B Pharm.
Semester	I
Name of Subject:	Pharmaceutics I
Subject code	BP103T
Academic Year	2022-23
Pattern	2019

A. Setting Course Outcomes for the Subject

Upon completion of the course, students shall be able to;	
CO 1	Understand the history of the profession of Pharmacy in India & Pharmacopeia and its development.
CO 2	Learn about the different parts of prescription, its professional way of handling, and dose calculation based on age, weight, and body surface area of the patient.
CO 3	Formulate and Evaluate various dosage forms.
CO 4	Select suitable packaging material and labeling techniques for various dosage form.
CO 5	Know the mechanisms of drug penetration and also the factors influencing permeation through the transdermal route
CO 6	Study the different types of incompatibilities of pharmaceuticals.

B. Setting Program Outcomes



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Program Outcomes	
PO 1	Pharmacy knowledge
PO 2	Problem analysis
PO 3	Design/Development of solution
PO 4	Conduct Investigations of Complex Problems
PO 5	Modern Tool Usage
PO 6	The Pharmacy and Society
PO 7	Environment and Sustainability
PO 8	Ethics
PO 9	Individual and Teamwork
PO 10	Communication
PO 11	Project Management and Finance
PO 12	Lifelong Learning

C. Mapping COs with POs

- Each CO can be identified to address a subset of POs
- Based on the number of COs and the sessions dedicated to them, it is possible to identify the strength of mapping
- Strength of mapping is defined at three levels i.e. Low-1, Medium-2, Strong-3

CO-PO Mapping (Rate on a scale of 0-3)												
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	3	2	2	3	2	3	2	3	2	3	2	3
CO 2	3	1							2	2	2	3
CO 3	3	2	2	2	1		2	3		2	1	3
CO 4	3	2		2	1				2	2	2	3
CO 5	3	2	2	2	1		2				1	3
CO 6	3	3						3				3
Total	18	12	6	9	5	3	6	9	6	9	8	18
Average	3	2	2	2.2	1.2	3	2	3	2	2.25	1.6	3
Cumulative Average: 2.27												

D. Attainment of Course Outcomes

1. Direct Attainment (80 % weightage in final attainment)

External Exam Result (75 % weightage in direct attainment)

- Result analysis was done after the declaration of the University's Results
- The number of students who have appeared for the university examination (**N**) was determined.
- After that No. of students who scored more than the target (**P**) was determined, and the target was set at **50% (38 marks out of 75 marks exam)** highlighted in table with yellow colour.
- After that percentage of students who have achieved the target was determined using the formula: $(P/N) * 100$.
- Then the attainment was performed based on the following criteria;
3 for > 60%,
2 for 55-59.9 %,
1 for 50-54.9%

Internal Exam Result (25 % weightage in direct attainment)

- Result analysis was carried out after the completion of all the internal and continuous modes of examination.
- The number of students who have appeared for the internal examination (**N**) was determined.
- After that No. of students who scored more than the target (**P**) was determined, and the target was set at **60% (15 marks out of 25 marks exam)**.) highlighted in table with yellow colour.
- After that percentage of students who have achieved the target was determined using the formula: $(P/N) * 100$.
- Then the attainment was performed based on the following criteria;
3 for > 60%,
2 for 55-59.9 %,
1 for 50-54.9%

Table: Students appeared in the University Examination and their Result analysis

Roll No.	Name of student	Internal Marks (25)	External Marks (75)
1	AHER SHIVAM NIVRUTTI	22	51
2	AHIRE ADITI RAJENDRA	20	45
3	AHIRE MANOJ VITHOBA	21	50
4	AKHTER SONIA PERVAIZ	20	36
5	AMBILWADE RUSHIKESH SANDEEP	21	51
6	ASOLE RUTUJA ATULKUMAR	17	26
7	AWARE VICKY SANJAY	18	39
8	BAIRAGI SEJAL LAXMAN	14	40
9	BANKAR AJINKYA VISHNU	20	49
10	BARAD GAURI RAJESHA	20	39
11	BHADKE RUTUJA SAHEBRAO	19	45
12	BHAMARE PROJAL RAVINDRA	20	49
13	BHAVSAR MOKSHADA AASHISH	20	46
14	BHOGE TEJASHREE JITENDRA	20	46
15	BHOI DINESH RAVINDRA	19	38
16	BHOR NEHA NITIN	21	41
17	BORADE SAMIKSHA ROHIDAS	20	50
18	BORKAR SHRUTI GYANDEO	20	43
19	CHAKOR ATHARVA SANJAY	21	49
20	CHAUDHARI ABHISHEK SANJAY	18	49
21	CHAUDHARI NANDINI VIJAY	18	57
22	CHAUDHARI SANJAL SUDHIR	22	41
23	CHAUDHARI VAISHANAVI PRAMOD	18	39
24	CHAUDHARI VEDANT KANIFNATH	16	21
25	CHAVAN ARVIND RAJU	17	48
26	CHAVAN SAYALI SAMADHAN	16	27
27	CHINCHOLE SUSHANT VIJAY	20	44
28	CHOUDHARY AKRAM ABDUL RAHMAN	18	42
29	DALVI TANMAY SUDHIR	17	44
30	DARADE SHITAL SHIVAJI	18	47

31	DESHMUKH SIDDHARTH RAJENDRA	18	45
32	DIGHE JYOTI NARAYAN	18	49
33	DOKE ANIKET RAMNATH	13	25
34	DUSANE VAISHNAVI KAMLAKAR	17	42
35	GADAKH SAURABH SUDHAKAR	17	33
36	GADEKAR HITESH BHAGWAN	16	38
37	GAIKWAD VRUSHABH VITHALRAO	17	38
38	GANGURDE VAISHNAVI KAILAS	13	26
39	GARJE ROHIT	21	40
40	GOHAD NIKHIL SHANTARAM	15	40
41	HIWALE TRISHARAN ANIL	17	36
42	HUMBE AVDHUT DEVANAND	13	27
43	INGLE SHREYA SANDIP	20	38
44	JADHAV MAHESH SHANKAR	18	46
45	JADHAV SNEHA SAMADHAN	19	45
46	JADHAV VINOD RAMESH	16	26
47	JOSHI SOHAM PARAG	19	47
48	KALE GOPAL GAJANAN	17	44
49	KARAD SUDARSHAN TUKARAM	18	46
50	KARANDE DAMINI PRADIP	21	45
51	KHADAKE PRATHAMESH MILIND	19	39
52	KHAIRE SANIKA VILAS	17	37
53	KHAN ABDUL RUB ABDUL MOBEEN	8	24
54	KHEDULKAR CHHAYA MAHADU	15	30
55	LANDGE ROHIT JAYPRAKASH	16	39
56	LONARE PALLAVI RAJENDRA	16	35
57	MAKNOR ANUSHKA MACHINDRA	17	42
58	MALI GANESH LAXMAN	18	43
59	MALI MANGESH	19	37
60	MALI NUPUR AMIT	20	49
61	MARATHE AAKASH VILAS	24	53
62	MOHITE AMOL RAJENDRA	18	51
63	MOHITE SAHIL SOMNATH	9	21
64	MOURYA PRINCE DEVLASH	17	42

65	MUHUNDKAR PAYAL KISNA	22	47
66	MULEVA GANESH PANNALAL	23	44
67	MULLAY SHRAVANI RATNNAAKAR	19	37
68	MUTHE OMKAR SHANKAR	19	26
69	NIKAM PREM PRAKASH	19	35
70	NIKAM TANUJA SATISH	19	40
71	PACHBHAI SAKSHI BALAJI	19	38
72	PAKHALE TANMAYEE SANJAY	24	50
73	PALDE SWAMIRAJ BHASKAR	9	3
74	PARDESHI VAISHNAVI SAHEBRAO	19	43
75	PATEL ALFIYA ASIF	20	36
76	PATEL DHURV JAGDISH	17	25
77	PATIL AADITYA PRADIP	14	29
78	PATIL AKSHAY YOGRAJ	18	34
79	PATIL ASHWINI GOKUL	19	43
80	PATIL PRANJAL NILESH	21	43
81	PATIL PREM VIJAY	14	32
82	PATIL SANIYA MURALIDHAR	17	44
83	PATIL TEJASWINI MANOHAR	14	28
84	PATIL VAISHNAVI SAINATH	21	43
85	PATIL VEDIKA SUNIL	17	47
86	PAVASE SAKSHI YOGESH	19	42
87	PAWAR JEEVAN RAVINDRA	18	32
88	PHAPALE HIMANSHU SANTOSH	14	20
89	POTINDE VRUSHALI SANJAY	16	25
90	PURKAR PRASAD RAJENDRA	18	33
91	RAMOLE JAYASHRI SUBHASH	18	42
92	RATHOD SANDESH SANTOSH	11	5
93	RAYATE MANISH KESHAV	16	27
94	SADAPHAL SIDDHARTH PRAVIN	15	16
95	SANDECHA DISHA VIJAYKUMAR	18	43
96	SHILAWAT GAURAV BHAGAWAN	15	31
97	SHINDE SANSKRUTI JAYANT	18	36
98	SHIRSATH MANSI PRAKASH	18	32

99	SOLANKE GANESH MACHINDRA	16	29
100	SONAWANE KRUTIKA GANGADHAR	16	34
101	SURADKAR NIKHIL RAJESHWAR	15	24
102	TAHAKIK PRIYANKA BHAGWAT	17	34
103	THOSAR HIMANSHU MOHANRAO	15	27
104	TIDKE AYUSH PRAMOD	14	50
105	TILE PRATHMESH DATTATRAY	15	35
106	VEKHANDE PRANJALI HEMANT	17	41
107	VIDHATE SAKSHI SHYAM	19	37
108	VISPUTE KETAKI GOVIND	19	39
109	WAGH BHUMI SANJAY	20	30
110	WANI SAKSHI RAJENDRA	19	31
111	YEOLE SARTHAK BALU	19	26
112	ZANKAR GAURI SANJAY	20	35

Summary of Internal and External Examination result analysis

Description	Internal Examination	External Examination
Number of students who appeared for the exam (N)	112	112
No. of students who have scored more than the target (P)	99	65

2. Indirect Attainment (20 % weightage in final attainment)

- A questionnaire is prepared for the students to know their understanding of the subject.
- The questionnaires had three scale estimations for every question.
- Sample questionnaire including sample questions as follows;

Table: Questionnaire for Course Exit Survey

Sr. No.	Questions for the attainment of course outcomes	Completely	Moderately	None
1	Have you understood the history of the profession of Pharmacy in India & Pharmacopeia and its development?			
2	Have you learned about the different parts of prescription, its professional way of handling, and dose calculation based on age, weight, and body surface area of the patient?			
3	Have you learned to formulate and evaluate various dosage forms?			
4	Have you learned to select suitable packaging material and labeling techniques for various dosage forms?			
5	Have you understood the mechanisms of drug penetration and also the factors influencing permeation through the transdermal route?			
6	Have you studied the different types of incompatibilities of pharmaceuticals?			

Summary of Course Exit Survey

Description	Value
Number of students who appeared for the Survey (N)	112
No. of students who respond for the complete attainment of all the course outcomes (P), Target is completely attained	81

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Course Exit Survey

Name of Student	Darode shital shivaji	Roll No	30.
Class	First Year B. Pharm.	Semester	I
Name of Subject	Pharmaceutics I	Subject code	BP103T
Academic Year	2022-23	Pattern	2019

Questionnaire for Course Exit Survey: Kindly respond to the following questions based on their level of attainment.

Sr. No.	Questions for the attainment of course outcomes	Completely	Moderately	None
1	Have you understood the history of the profession of Pharmacy in India & Pharmacopeia and its development?	✓		
2	Have you learned about the different parts of prescription, its professional way of handling, and dose calculation based on age, weight, and body surface area of the patient?	✓		
3	Have you learned to formulate and evaluate various dosage forms?	✓		
4	Have you learned to select suitable packaging material and labeling techniques for various dosage forms?		✓	
5	Have you understood the mechanisms of drug penetration and also the factors influencing permeation through the transdermal route	✓		
6	Have you studied the different types of incompatibilities of pharmaceuticals?		✓	

Signature

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Figure: Sample Template for Responses of Students to Course Exit Survey

Table: Final Attainment of Course Outcomes

Attainment of CO			
	Direct Attainment (DA)		Indirect Attainment (IA)
	Internal (I)	External (E.)	Course Exit Survey
No. of students who have scored more than the target (P)	99	65	81
Number of students who appeared for the exam (N)	112	112	112
% of students who have achieved the target= $(P/N)*100$	88.39	58.04	72.32
Attainment Level 3 for > 60%, 2 for 55-59.9 %, 1 for 50-54.9%	3	2	3
Direct CO attainment level (DA)= 25% (I) + 75% (E.)	2.25		
Indirect CO Attainment based on exit survey	3		
80 % of DA	1.8		
20 % of IA	0.6		
CO attainment level (COA)= 80 % of DA + 20 % of IA	2.4		

Result

Attainment level using CO-PO mapping	2.27
Attainment level after result analysis and course exit survey	2.4

Steps for Attainment of Program Outcomes

For program attainment, the alumni survey on the university syllabus is carried out.

- The alumni were asked to give ratings to the questions asked in the survey based on the program outcomes.
- According to the target levels set for ratings, the attainment is calculated and finalized. The target level was set as if
- > 75% rating is Excellent -3;
- 60-74.99% rating is excellent – 2,
- 50-59.99 % rating is excellent – 1.

Alumni Survey

Table: Questionnaire for Alumni Survey (1 - Poor, 2 – Average, 3 – Good, 4 – Very good, 5 – Excellent).

Sr. No.	Description	1	2	3	4	5
1	The overall learning experience at SIPS					
2	Availability of extracurricular/co-curricular activities in regular mode for holistic growth					
3	Opportunities to express yourself and interact with the outside world					
4	Efforts made by the institute to enhance your overall employability and development					
5	Conduction of professional training like soft skills, GATE, GRE, GPAT					
6	Teaching methodologies like ICT-enabled tools					
7	The status of the current syllabus in terms of industry needs					
8	The curriculum enhances the understanding of human values, ethics, and social responsibilities.					
9	Placement opportunities at SIPS					
10	The program's educational objectives are achieved					



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Alumni Survey for Program Outcomes

Name of Alumni	Vaishnavi. Gtrase				
Completed course	B. Pharm				
Year of Completion	2023				

Kindly respond to the following questions based on their level of attainment.
For each question, please tick (✓) at the appropriate box. (1 - Poor, 2 - Average, 3 - Good, 4 - Very good, 5 - Excellent).

S.N.	Description	1	2	3	4	5
1	The overall learning experience at SIPS				✓	
2	Availability of extracurricular/co-curricular activities in regular mode for holistic growth					✓
3	Opportunities to express yourself and interact with the outside world				✓	
4	Efforts made by the institute to enhance your overall employability and development					✓
5	Conduction of professional training like soft skills, GATE, GRE, GPAT					✓
6	Teaching methodologies like ICT-enabled tools				✓	
7	The status of the current syllabus in terms of industry needs					✓
8	The curriculum enhances the understanding of human values, ethics, and social responsibilities.				✓	
9	Placement opportunities at SIPS					✓
10	The program's educational objectives are achieved					✓

V. Gtrase
Signature

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Figure: Sample Template for Responses of Alumni to Program Attainment Survey

Summary of Alumni Survey

Alumni participated in Survey: 98

Sr. No.	Description	Alumni rating for Questions				
		1	2	3	4	5
1	The overall learning experience at SIPS	-	1	-	2	95
2	Availability of extracurricular/co-curricular activities in regular mode for holistic growth	-	1	2	2	93
3	Opportunities to express yourself and interact with the outside world	-	1	4	2	91
4	Efforts made by the institute to enhance your overall employability and development	-	-	1	5	92
5	Conduction of professional training like soft skills, GATE, GRE, GPAT	1	1	2	3	91
6	Teaching methodologies like ICT-enabled tools	-	2	2	6	88
7	The status of the current syllabus in terms of industry needs	-	-	10	3	85
8	The curriculum enhances the understanding of human values, ethics, and social responsibilities.	1	2	2	6	87
9	Placement opportunities at SIPS	-	-	-	-	98
10	The program's educational objectives are achieved	-	-	4	5	89

Amongst 98 participants more than 85 have given excellent ratings for all the questions.

Hence, the percentage of participants who have given excellent ratings is = $85/98 * 100 = 86.73\%$.

As the calculated percentage is more than 75%, hence level of attainment is 3.

Result

Attainment level using CO-PO mapping	2.27
Attainment level after result analysis and alumni survey	3