



Steps for preparation of CO-PO attainment

Step 1: Details of the programme. : B.PHARMACY III sem

Details of Course : Physical pharmaceutics-I

Course Objective: Student should learn various physicochemical properties of Drugs

Step 2: Outline the Course Outcomes (COs) as shown below:

CO1	Understand various physicochemical properties of drug molecules in the designing the dosage form
CO2	Know the principles of chemical kinetics & to use them in assigning expiry date for formulation.
CO3	Demonstrate use of physicochemical properties in evaluation of dosage forms
CO4	Appreciate physicochemical properties of drug molecules in formulation Research and development
CO5	Understand various physicochemical properties of drug molecules in the designing the dosage form

Step 3: Outline the Program Outcomes (PO) and Program Specific Outcomes (PSO). Perform the CO mapping with PO and PSO.

PO1	Pharmacy Knowledge
PO2	Planning Abilities
PO3	Problem analysis
PO4	Modern tool usage
PO5	Leadership skills
PO6	Professional Identity
PO7	Pharmaceutical Ethics
PO8	Communication
PO9	The Pharmacist and society



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PO10	Environment and sustainability
PO11	Life-long learning

PSO1	The students shall be able to apply the knowledge and skill gained from various subjects and the aptitude developed throughout the course of the program in performing a job either independently or as a member of a team in various fields of pharmacy profession
PSO2	The students shall be able to make an initiation and achieve an innovation by properly integrating the input from various resources either independently or as a member of a team in various fields of pharmacy profession for betterment of the quality of life of the patients in the society

Step 4: Perform the CO mapping with PO and PSO.

Course Outcomes	Program outcomes											PSO	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	0	0	2	0	0	0	0	0	0	2	3	2
CO2	3	0	0	3	0	0	0	0	0	0	3	3	3
CO3	3	0	0	1	0	0	0	0	0	0	1	3	1
CO4	3	0	0	3	0	0	0	0	0	0	1	3	1
Average	3.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	1.75	3.00	1.75

Here in the table, '3' corresponds to a high correlation; '2' corresponds to a medium correlation, and

'1' corresponds to a low correlation, between CO and PO/PSO.

Step 5: Fill in the entries (**bold**) as suggested in the table for CO attainment calculations.

If needed, one may use more internal assessment tools (assignments/quiz, etc.).

The target (P) may be 50% as per the requirements of the course and program.

Further, the target remains same for direct and indirect assessments **CO Attainment Calculations**

	Direct Assessment					Indirect Assessment	
	Internal Marks					External marks (75M)	Student course survey
	Continuo us mode	Sess-1 (30 M)	Sess-2 (30 M)	Averag e marks (Comp uted for 15M)	Total sessional marks (25M)		
Target marks (50%)	5	15	15	7.5	12.5	50%	
Number of students above target marks	P	P	P	P	P	P	
Number of students attended	N	N	N	N	N	N	
% of Students above Target Marks :	P/N*100	P/N*100	P/N*100	P/N*100	P/N*100	P/N*100	
COs							
Attainment level	a				b	c	d

Attainment (3 ≥ 70%, 2 ≥ 60%, 1 ≥ 50%, 0 < 50%)

Internal Exam Attainment value	Average of a&b
External Exam Attainment value	C
overall direct attainment value (70% of external + 30% of internal Examination)	
Indirect attainment value	d
Overall CO attainment (80% of direct attainment +20% of indirect attainment)	



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Step 6: After filling in the details in the last step (P and P/N), assign the attainment level (3/2/1 according to (P/N) values) based on Direct Assessment 1, Direct Assessment 2, and Indirect Assessment.

Attainment level (3 if more than 70% of students achieved the target / 2 for >60% / 1 for >50%)

Direct assessment 1: refers to evaluation through internal assessments which majorly include Continuous mode (Assignments, slip tests, attendance etc) and Sessional marks.

Direct assessment 2: refers to evaluation through End Semester Examination (ESE)

Indirect assessment: refers to the exit feedback survey taken by students/faculty/employers. The exit feedback survey must be taken up before the end of the semester.

The exit survey may be based on a marking scheme (1-3) for each CO.

The course exit survey samples are given below for student/faculty/employer

Sample1: Course Outcome exit survey for students.

	Course Outcome	1(Low)	2(Moderate)	3(High)
CO1	Understand various physicochemical properties of drug molecules in the designing the dosage form			
CO2	Know the principles of chemical kinetics & to use them in assigning expiry date for formulation.			
CO3	Demonstrate use of physicochemical properties in evaluation of dosage forms			
CO4	Appreciate physicochemical properties of drug molecules in formulation Research and development			
CO5	Understand various physicochemical properties of drug molecules in the designing the dosage form			

Sample 2: Course Contents exit survey for students.

Questions	1(Low)	2(Moderate)	3(High)
Quality of the Course Content			
Relevance of the textbook to this course			
Were the lectures clear/well organized and presented at a reasonable pace?			
Did the lectures stimulate you intellectually?			
Are the assignment/lab experiment procedures clearly explained?			
Does the faculty utilizes LCD projectors			

Sample3: Faculty/Employer Survey

Questions	1(Low)	2(Moderate)	3(High)
Satisfaction with the caliber of the graduates			
Courses are relevant to the organization's vision and mission			
Satisfaction with the speed at which course content is being adapted to meet changing industrial needs			
Relevant subject or discipline knowledge			
Quality of employability skills and attributes			
The satisfaction that graduates are learning the right skills			

Further steps to follow for the calculation of Course Outcome attainment (COA) level:

- Assign the attainment level (3 for >70%/2 for >60%/1 for >50%) for Direct Assessment and Indirect Assessment.
- Attainment based on internal assessment = Average of sessional I,II & Continous mode.
- Direct CO Attainment Level (DA) =30% IA + 70% EA
- Indirect CO Attainment Level (IA)
- Finally, Course Outcome Attainment (COA) level = 80% of DA and 20% of IA

	Direct Assessment						Indirect Assessment
	Internal Marks					External marks	Student course survey
	Continous mode	Sess-1	Sess-2	Avg	Total sessional marks		
Target marks (50%)	5	15	15	7.5	12.5	50%	attainment
Number of students above target marks	101	72	65	69	70	78	101
Number of students attended	101	99	99	101	101	101	101
% of Students above Target Marks :	100.00	72.72	65.65	68.31	99.01	77.23	100
COs	CO1 TO CO5	CO1,CO2,CO3	CO3,C04,CO5				
Attainment level	3.00	3	2			3.00	3.00

Attainment (3 ≥ 70%, 2 ≥ 60%, 1 ≥ 50%, 0 < 50%)

Internal Exam Attainment value	2.66
External Exam Attainment value	3
overall direct attainment value (70% of external + 30% of internal Examination)	2.8
Indirect attainment value	3
Overall CO attainment (80% of direct attainment +20% of indirect attainment)	2.84

Step 7: Based on the Course Objectives Attainment (COA) value as calculated at the end of step 6, perform the PO/PSO Attainment Calculations as shown below:

$$\text{PO/PSO Attainment} = \text{COA} \times \text{M}/3$$

(Refer to Step 6 for COA value)

M=Mapping value

	CO-PO-PSO Attainment Calculation												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-PO/PSO mapping	3	0	0	2.25	0	0	0	0	0	0	1.75	3.00	1.75
CO-PO/PSO attainment	2.84	0	0	2.13	0	0	0	0	0	0	1.65	2.84	1.65



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PROGRAMME: B.Pharmacy III sem (2023-24)
COURSE: Physical pharmaceutics I (THEORY)

COURSE OUTCOMES

BP303T.1	CO1	Understand the mechanism, factors and methods to improve solubility of drugs
BP303T.2	CO2	learn about different state of matters and their conversions & Physico chemical properties of drugs
BP303T.3	CO3	Study about interfacial and surface tensions of biphasic systems and their formulations
BP303T.4	CO4	Understanding about complexation , protein binding and ph isotonic solutions

CO-PO-PSO MAPPING

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	0	0	2	0	0	0	0	0	0	2	3	2
CO2	3	0	0	3	0	0	0	0	0	0	3	3	3
CO3	3	0	0	1	0	0	0	0	0	0	1	3	1
CO4	3	0	0	3	0	0	0	0	0	0	1	3	1
Average	3.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	1.75	3.00	1.75



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COURSE OUTCOME ATTAINMENT

PROGRAMME: B.Pharmacy III sem (2023-24) SECTION-A

COURSE: Physical pharmaceutics I (THEORY)

S No.	Hall Ticket No.	Name of the Student	Continuous mode (10M)	Sessional Marks (30M)		average marks computed for 15M	Total Sessional Marks 25M (A+B)	External	Indirect evaluation
				A	I				
1	35123-6001	ABDUL ARIF ALAM	10	23	26	12	22	C	2.25
2	35123-6002	ABDUR RAHIM	10	27	27	14	24	C	2.50
3	35123-6003	ABUL UDDIN	10	29	29	15	25	C	2.50
4	35123-6004	AKBAR ALI	10	9	17	7	17	D	2.25
5	35123-6006	ANKALLA CHANDANA	10	30	19	12	22	C	2.25
6	35123-6007	ANOWAR HUSSAIN	10	24	23	12	22	C	2.25
7	35123-6008	ARFATH ALI	10	7	AB	2	12	F	2.00
8	35123-6009	ARSAD AHMED CHOUDHURY	10	11	9	5	15	D	2.25
9	35123-6010	ASHRAFUL AHMED	10	22	23	11	21	C	2.25
10	35123-6011	ASHRAFUL ISLAM	10	AB	28	7	17	C	2.50
11	35123-6012	ASRAFUL HOQUE	10	25	27	13	23	C	2.00
12	35123-6013	BATTU SRAVAN KUMAR	10	24	19	11	21	B	2.50
13	35123-6014	BHUKYA SONIKA	10	24	29	13	23	C	2.50
14	35123-6016	BODDUPALLI SUVARNA	10	24	27	13	23	D	2.25
15	35123-6017	BONDUGULA SANJANA	10	25	27	13	23	B	2.00
16	35123-6018	BOODIDA AKSHAYA	10	30	29	15	25	A	2.25
17	35123-6019	BURRA MILIND GOUD	10	23	25	12	22	C	2.50
18	35123-6020	CHILUKURI THARUN	10	19	AB	5	15	C	2.50
19	35123-6021	CHINTHAPANDU SAI SUDHA	10	21	24	11	21	C	2.25
20	35123-6022	DADIGELA SNEHA	10	26	25	13	23	B	2.50
21	35123-6023	DILSHA	10	21	26	12	22	B	2.50
22	35123-6024	EADARA MADHULIKA	10	26	27	13	23	B	2.25
23	35123-6026	FARIDUL ISLAM	10	26	28	14	24	B	2.00
24	35123-6027	FARISA FATHIMA	10	29	29	15	25	B	2.50
25	35123-6028	FIDDUSUR RAHMAN	10	14	15	7	17	C	2.50
26	35123-6029	GOPALAPURAM SRIYA	10	18	28	12	22	C	2.25
27	35123-6030	GUGGILLA SHARON	10	17	29	12	22	D	2.00
28	35123-6031	GUGULOTHU GNANESHWARI	10	25	26	13	23	D	2.25



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29	35123-6032	GUGULOTHU SHIVA SHANKAR	10	4	16	5	15	F	2.25
30	35123-6033	HAFIJUR RAHMAN	10	21	20	10	20	D	2.25
31	35123-6035	JADI PRAHALAD	10	8	11	5	15	D	2.25
32	35123-6036	JAHIDUL ISLAM	10	7	16	6	16	D	2.00
33	35123-6037	JAINUDDIN	10	7	15	6	16	F	2.25
34	35123-6038	JAKKULA SWETHA	10	26	28	14	24	C	2.50
35	35123-6039	K KARTHIK	10	17	16	8	18	F	2.00
36	35123-6040	KAKKERLA SUSHMA	10	16	24	10	20	D	2.25
37	35123-6041	KAMAGONI SAI CHARITHA	10	25	28	13	23	D	2.00
38	35123-6042	KONDURI SIREESHA	10	24	26	13	23	D	2.50
39	35123-6043	KOTA ABHISHAKTH	10	20	18	10	20	F	2.00
40	35123-6044	KOYYADA PRASHAMSHA	10	24	26	13	23	D	2.25
41	35123-6045	LINGAM BHEEMAMMA	10	23	15	10	20	F	2.50
42	35123-6046	MADDINALA SHANKAR	10	14	19	8	18	D	2.50
43	35123-6047	MAHBUBUL HASAN LASKAR	10	9	15	6	16	D	2.25
44	35123-6048	MAHMUDUL HASAN CHOUDHURY	10	22	22	11	21	C	2.25
45	35123-6049	MALA BALA KRISHNA	10	18	19	9	19	C	2.00
46	35123-6050	MALOTH AKASH	10	8	9	4	14	D	2.50
47	35123-6051	MAMUNURI NETHAJI	10	15	16	8	18	D	2.50

Target marks (50%)	5	15	15	7.5	12.5	50%	2
Number of students above target marks	47	34	38	35	46	41	37
Number of students attended	47	46	45	47	47	49	47
% of Students above Target Marks :	100.00	73.91	84.44	74.47	97.87	83.67	78.72
COURSE OUTCOMES MAPPED	Co1-Co2	Co1-Co2	Co3-Co4			Co1-Co4	
Attainment level	3.00	3.00	3.00			3.00	3.00

Attainment value ($3 \geq 70\%$, $2 \geq 60\%$, $1 \geq 50\%$, $0 < 50\%$)

Internal Exam Attainment value	3
External Exam Attainment value	3
overall direct attainment value (70% of external + 30% of internal Examination)	3
Indirect attainment value	3
Overall CO attainment (80% of direct attainment +20% of indirect attainment)	3

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CO-PO ATTAINMENT

PROGRAMME: B.Pharmacy IIIsem (2022-23) SECTION-A

COURSE: Physical pharmaceutics I (THEORY)

PO attainment= CO attainment valueX mapping value/3

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO PO PSO Mapping	3.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	1.75	3.00	1.75
CO PO PSO Attainment	3.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	1.75	3.00	1.75



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PROGRAMME: B.Pharmacy III sem (2023-24) SECTION-A

COURSE: Physical Pharmaceutics-I (THEORY)

INDIRECT EVALUATION OF COURSE OUTCOMES BY STUDENT FEEDBACK

LEVEL 1	LOW
LEVEL 2	MODERATE
LEVEL 3	HIGH

S No.	Hall Ticket No.	Name of the Student	CO1	CO2	CO3	CO4	AVG
1	35123-6001	ABDUL ARIF ALAM	2	3	2	2	2.25
2	35123-6002	ABDUR RAHIM	2	2	3	3	2.5
3	35123-6003	ABUL UDDIN	3	2	3	2	2.5
4	35123-6004	AKBAR ALI	2	2	3	2	2.25
5	35123-6006	ANKALLA CHANDANA	2	2	3	2	2.25
6	35123-6007	ANOWAR HUSSAIN	2	2	2	3	2.25
7	35123-6008	ARFATH ALI	2	2	2	2	2
8	35123-6009	ARSAD AHMED CHOUDHURY	3	2	2	2	2.25
9	35123-6010	ASHRAFUL AHMED	2	2	3	2	2.25
10	35123-6011	ASHRAFUL ISLAM	2	2	3	3	2.5
11	35123-6012	ASRAFUL HOQUE	2	2	2	2	2
12	35123-6013	BATTU SRAVAN KUMAR	2	2	3	3	2.5
13	35123-6014	BHUKYA SONIKA	3	2	3	2	2.5
14	35123-6016	BODDUPALLI SUVARNA	2	2	2	3	2.25
15	35123-6017	BONDUGULA SANJANA	2	2	2	2	2
16	35123-6018	BOODIDA AKSHAYA	2	2	2	3	2.25
17	35123-6019	BURRA MILIND GOUD	3	2	3	2	2.5
18	35123-6020	CHILUKURI THARUN	3	2	3	2	2.5
19	35123-6021	CHINTHAPANDU SAI SUDHA	2	2	3	2	2.25
20	35123-6022	DADIGELA SNEHA	2	3	2	3	2.5
21	35123-6023	DILSHA	3	2	3	2	2.5
22	35123-6024	EADARA MADHULIKA	3	2	2	2	2.25
23	35123-6026	FARIDUL ISLAM	2	2	2	2	2
24	35123-6027	FARISA FATHIMA	2	2	3	3	2.5
25	35123-6028	FIDDUSUR RAHMAN	3	3	2	2	2.5
26	35123-6029	GOPALAPURAM SRIYA	2	2	2	3	2.25
27	35123-6030	GUGGILLA SHARON	2	2	2	2	2
28	35123-6031	GUGULOTHU GNANESHWARI	3	2	2	2	2.25
29	35123-6032	GUGULOTHU SHIVA SHANKAR	2	2	2	3	2.25
30	35123-6033	HAFIJUR RAHMAN	3	2	2	2	2.25



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31	35123-6035	JADI PRAHALAD	2	3	2	2	2.25
32	35123-6036	JAHIDUL ISLAM	2	2	2	2	2
33	35123-6037	JAINUDDIN	3	2	2	2	2.25
34	35123-6038	JAKKULA SWETHA	3	2	3	2	2.5
35	35123-6039	K KARTHIK	2	2	2	2	2
36	35123-6040	KAKKERLA SUSHMA	3	2	2	2	2.25
37	35123-6041	KAMAGONI SAI CHARITHA	2	2	2	2	2
38	35123-6042	KONDURI SIREESHA	3	3	2	2	2.5
39	35123-6043	KOTA ABHISHAKTH	2	2	2	2	2
40	35123-6044	KOYYADA PRASHAMSHA	2	2	2	3	2.25
41	35123-6045	LINGAM BHEEMAMMA	3	2	2	3	2.5
42	35123-6046	MADDINALA SHANKAR	3	2	3	2	2.5
43	35123-6047	MAHBUBUL HASAN LASKAR	2	3	2	2	2.25
44	35123-6048	MAHMUDUL HASAN CHOUDHURY	2	2	2	3	2.25
45	35123-6049	MALA BALA KRISHNA	2	2	2	2	2
46	35123-6050	MALOTH AKASH	2	3	3	2	2.5
47	35123-6051	MAMUNURI NETHAJI	2	2	3	3	2.5



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