

**GAUTAM COLLEGE OF PHARMACY**  
**DISTT.HAMIRPUR 177001 (H.P)**

**LESSON PLAN**

**Course: D. Pharmacy 1<sup>st</sup> Year**  
**Session-2023-2024**  
**Subject Name: Pharmaceutics**  
**Subject Code: ER20-11T**  
**Total teaching hours allocated by PCI= 75 hrs**  
**Name of faculty: Palak**  
**Duration of topic: 1 hr**

Syllabus coverage schedule								
Chapter No.	Topic No	Title of Topic	Learning outcome	Scheduled Date	Pedagogy	Assignment Detail	Remarks	
1	1.	<b>History of the profession of pharmacy in India in relation to pharmacy education,</b> Industry pharmacy practice, and various professional associations Pharmacy as a career Introduction to IP Introduction BP, and USP NF and Extra Pharmacopoeia. Salient features of Indian Pharmacopoeia	After completion of the topic's the student will understand about History of the profession of pharmacy in India and its officials books in various countries	09/08/23	Hand written Notes	Various systems of measures commonly used in prescribing, compounding and dispensing practices Various systems of measures commonly used in prescribing, compounding and dispensing practices	P	
	14/08/23							
				17/08/23				
				22/08/23				
				28/08/23				
				29/08/23				
				31/08/23				
				04/08/23			P	
				05/08/23			P	
2	8.	<b>Packaging materials, and types</b>	After completion of the topic's the student will understand about Packaging material, and types, Advantages and disadvantages of various packaging materials	11/09/23			P	
	9.	Packaging materials, selection criteria,		12/09/23			P	
	10.	Advantages and disadvantages of glass,		13/09/23	PPT/ PDF& Notes through on line mode		P	
	11.	Advantages and disadvantages of plastic		18/09/23			P	
	12.	Advantages and disadvantages of metal, rubber as packaging materials		19/09/23			P	
3	13.	<b>Pharmaceutical aids: Organoleptic colouring, agents</b>	After completion of the topic's the	20/09/23 21/09/23	Hand written Notes	Market preparations (including Fixed	P P	

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	14. flavouring, and sweetening agent	student will understand about Pharmaceutical aids, flavouring, and sweetening agent etc.	26/09/23		Dose Combinations) of each type of dosage forms, their generic name, minimum three brand names and label contents of the dosage forms mentioned in theory/practical	P
	15. Preservatives: definition, types with examples and uses		23/09/23			03/10/23 04/10/23
4	16. Unit operations: definition, objectives/applications, principles, construction, and workings of: Size reduction: hammer mill	After completion of the topic's the student will understand about Unit operation and various types of mills used in industries.	07/10/23	PPT/ PDF& Notes through on line mode		P
	17. Definition, objectives/ applications, principles, construction and workings of ball mill		10/10/23 12/10/23			P
	18. Size separation: classification of powders according to IP.		19/10/23 18/10/23 19/10/23			P
	19. Cyclone separator, Sieves and Standards of sieves		25/10/23 26/10/23 30/10/23			P
	20. Mixing: Double cone blender, Turbine mixer, triple roller Mill		01/11/23 02/11/23 09/11/23			P
	21. Silverson mixer homogenizer		29/11/23 21/11/23			P
	22. Filtration: Theory of filtration, membrane filter and sintered glass filter		22/11/23 23/11/23 29/11/23			P
	23. Drying: working of fluidized bed dryer and process of freeze drying		30/11/23 05/12/23 06/12/23			P
	24. Extraction: definition, classification, method, and applications		07/12/23 12/12/23			P
5	25. Tablets – coated and uncoated		After completion of the topic's the student will understand about various techniques used in productions of various dosage forms of drugs			13/12/23 14/12/23
	26. Various modified tablets sustained release	19/12/23		P		
	27. Extended-release,	20/12/23		P		
	28. Fast dissolving,	21/12/23		P		
	29. Multilayered,	27/12/23		P		
	30. Capsules-hard gelatin capsules	28/12/23		P		

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	31	Capsules-soft gelatin capsule	like tablets, capsule, creams, paste, gels etc.	01/01/24		formulations	Ⓟ	
	32	Liquid oral preparation solution,		18/01/24			Ⓟ	
	33	Liquid oral preparations- syrup		23/01/24	Hand written Notes		Ⓟ	
	34	Liquid oral preparations-Elixir		24/01/24			Ⓟ	
	35	Liquid oral preparations-Emulsion,		29/01/24			Ⓟ	
	36	Liquid oral preparations -suspension,		30/01/24			Ⓟ	
	37	Liquid oral preparations -dry powder for reconstitution		31/01/24			Ⓟ	
	38	Topical preparations- ointments		05/02/24			Ⓟ	
	39	Creams,		06/02/24	PPT/PDF& Notes through on line mode		Ⓟ	
	40	Pastes,		07/02/24				Ⓟ
	41	Gels,	12/02/24			Ⓟ		
	42	Liniments	13/02/24			Ⓟ		
	43	Pessaries	15/02/24			Ⓟ		
	44	Lotions,	20/02/24			Ⓟ		
	45	Suppositories,	21/02/24	Hand written Notes		Ⓟ		
	46	Nasal preparations	22/02/24				Ⓟ	
	47	Ear preparations	27/02/24				Ⓟ	
	48	Powders and granules, Insufflations dusting powders,	28/02/24			Ⓟ		
	49	Effervescent powders,	24/02/24			Ⓟ		
	50	and effervescent granules	11/03/24			Ⓟ		
	51	Sterile formulations – Injectable	12/03/24			Ⓟ		
	52	Eye drops	13/03/24			Ⓟ		
	53	Eye-ointments	18/03/24			Ⓟ		
	54	Immunological products: Sera manufacturing methods.	19/03/24			Ⓟ		
	55	Vaccines manufacturing methods.	20/03/24			Ⓟ		
	56	Toxoids, and their manufacturing methods.	26/03/24			Ⓟ		
6	57	<b>Basic structure, layout, sections, of pharmaceutical manufacturing plants</b>	After completion of the topic's the student will understand about structure, layout, sections, activities and	27/03/24	Hand written Notes	Overview of extemporaneous preparations at community / hospital pharmacy vs. manufacturing of dosage forms	Ⓟ	
	58	Activities of pharmaceutical manufacturing plants		28/03/24				Ⓟ
	59	Definition and concepts of quality control and quality assurance,		02/04/24 04/04/24				Ⓟ

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	60. Current good manufacturing practice (cGMP)	cGMP of pharmaceutical manufacturing plants	08/04/24		at industrial level	
	61. Introduction to the concept of calibration and validation		10/04/24 11/04/24			
7	62. Novel drug delivery systems: Introduction	After completion of the topic's the student will understand about Novel drug delivery systems, its advantages and disadvantages, approaches to design controlled release formulations and challenges of Novel drug delivery systems	16/04/24	Hand written Notes	Basic pharmaceutical calculations: ratios, conversion to percentage fraction, alligation, proof spirit, isotonicity	
	63. Classification with examples		29/04/24			
	64. Advantages and disadvantages of Novel drug delivery systems		30/04/24			
	65. Approaches to design controlled release formulations		01/05/24			
	66. Challenges of Novel drug delivery systems		02/05/24			
			06/05/24 07/05/24			

- 1. Total No of Assignments given: 05
- 2. Model question paper given: Yes/No
- 3. No. of extra Lectures delivered:
- 4. Feedback from student taken: Yes/No

Signature of the subject Teacher

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**Lesson Plan Practical**  
**Subject & code: Pharmaceutics (Practical) & (ER20-11P)**

Session August 2023—June 2024

Sr. no	Title of virtual experiments	Requirements	Scheduled date Batch A	Scheduled date Batch B	Remarks
1.	To study the various Instruments & term used in pharmaceutics		30/8/23	10/08/23	e
2.	To prepare & submit chloroform water.	Measuring cylinder, beaker, glass-rod, chloroform(9P), purified water.	06/9/23	17/08/23	e
3.	To prepare and submit simple syrup.	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, stirrer etc. Sucrose and purified water.	13/09/23	21/08/23	e
4.	To prepare & submit 100 ml of peppermint oil	Measuring cylinder, beaker, glass-rod, peppermint oil, purified water.	20/09/23	21/08/23	e
5.	To prepare and submit 30ml of aqueous iodine solution	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Iodine, potassium iodide and purified water	27/09/23	21/08/23	e
6.	To prepare and submit 30ml of Castor oil emulsion	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Castor oil and Cinnamon water q. s.	04/09/23	28/08/23	e
7.	To prepare and submit 30ml of Calamine lotion	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc.	11/10/23	05/10/23	e

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		Calamine, Zinc oxide, Bentonite, Glycerin, sodium citrate, Liquefied phenol, rose water, Purified water.			
8.	To prepare and submit 20ml of Magnesium Hydroxide mixture	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Magnesium sulphate, sodium hydroxide, light magnesium oxide and purified water.	18/10/20	12/10/20	P
9.	To prepare and submit 100gm of Simple ointment	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, ointments slab etc. Wool fat, hard paraffin, white soft paraffin, cetostearyl alcohol.	25/10/20	19/10/20	Q
10.	To prepare and submit 100gm of Sulphur ointment I.P.	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, ointments slab etc. Sublimed Sulphur, wool fat, hard paraffin, white soft paraffin, Cetostearyl alcohol.	01/11/20	26/10/20	Q
11.	To prepare and submit 30gm of Sodium alginate gel.	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker etc. Sodium alginate, Calcium chloride, Coloring agent, purified water	22/11/23	02/11/23	R
12.	To prepare and submit	Mortar & pestle,	20/11/20	11/11/20	Q

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	30ml of White Liniment BPC.	weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Ammonium chloride, Dil. Ammonia Solution, Oleic acid, turpentine oil, purified water			
13.	To prepare and submit 30ml of Turpentine Liniment	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Soft soap, camphor, turpentine oil, purified water.	06/12/23	16/11/23	Ⓟ
14.	To prepare and submit 10gm of Effervescent granules.	Mortar & pestle, weigh balance sieve shaker, China dish etc. Sodium phosphate, sodium bicarbonate, tartaric acid.	13/12/23	23/11/23	Ⓟ
15.	To prepare and submit 30gm of Dusting powder	Mortar & pestle, weigh balance, sieve shaker etc. Purified talc, starch, zinc oxide	20/12/23	30/11/23	Ⓟ
16	To understand about various stages of tablet manufacturing process.		27/12/23	7/12/23	Ⓟ
17.	To prepare and submit 10 ml sodium chloride injection I.P	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker, funnel etc. Sodium chloride and sterile water for injection I.P	24/12/23	14/12/23	Ⓟ
18.	To prepare and submit 10 Tetracycline Capsule I.P	: Mortar & pestle, weigh balance and spatula. Tetracycline, Starch, Talc.	31/01/24	21/12/23	Ⓟ
19.	To prepare and submit 10 Paracetamol Tablet	Mortar and pestle, beaker, sieve No 10, tablet punching	07/02/24	28/12/23	Ⓟ

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		machine, hot air oven Paracetamol, lactose, dry starch, magnesium stearate, talc.			
20.	To prepare and submit 20ml of shampoo.	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker etc. Coconut oil, Castor oil, Potassium hydroxide, Glycerol, Perfume, Borax, Purified water	21/02/24	18/01/24	Ⓜ
21.	To prepare and submit 30gm of cold cream	Mortar & pestle, weigh balance sieve shaker, China dish, water bath. White bees wax, liquid paraffin, borax, perfume, purified water	22/02/24	25/01/24	Ⓜ
22.	To prepare and submit 20gm lipsticks.	Mortar & pestle, weigh balance, measuring cylinder, glass rod, spatula, beaker etc. Carnauba wax, Bee wax, lanolin, Cetyl alcohol, carmine, perfume, Castor oil	13/02/24	01/02/24	Ⓜ
23.	To prepare and submit 30gm of vanishing cream.	Mortar & pestle, weigh balance, water bath, beaker, measuring cylinder etc. Stearic acid, potassium hydroxide, Glycerine, perfume, purified water	20/02/24	08/02/24	Ⓜ
24.	To prepare and submit 20gm of face powder.	Mortar & pestle, weigh balance, sieve shaker etc. Talc, kaolin, Chalk precipitated, Zinc stearate, Zinc oxide,	27/02/24	15/02/24	Ⓜ

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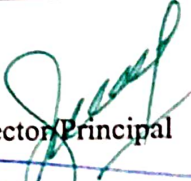
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		Perfume and colour			
25.	To prepare and submit 20gm of Toothpaste	Mortar & pestle, weigh balance, Beaker, Pipette etc. Dicalcium Phosphate, Sodium Lauryl Sulphate, PEG, Glycerine. Sodium saccharine, Gum tragacanth, Peppermint oil, water	05/04/21	14/07/21	

  
Subject Teacher

  
Academic I/C

  
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