

Performa : Hindu College of Pharmacy, Sonipat (024)				
Lesson Plan				
Name of the faculty		Naveen		
Discipline		Pharmacy		
Semester		1 <sup>st</sup> Year		
Subject		Pharmaceutics		
Lesson plan Duration		25 weeks (Oct. 2021 to May 2022)		
Work Load/week(In hour)		Lecture- 03; Tutorial -01; Practical- 09		
Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	
1 <sup>st</sup> (Oct. 3 <sup>rd</sup> week)	1 <sup>st</sup>	Chapter-1 History of profession of pharmacy in relation to pharmacy education	1 <sup>st</sup> (Batch A)	Instructions on the working formula for formulation
	2 <sup>nd</sup>	History of profession of pharmacy in relation to pharmacy practice	2 <sup>nd</sup> (Batch B)	Instructions on the working formula for formulation
	3 <sup>rd</sup>	History of profession of pharmacy in relation to various professional associations	3 <sup>rd</sup> (Batch C)	Instructions on the working formula for formulation
	4 <sup>th</sup>	Pharmacy as a career		
2 <sup>nd</sup> (Oct. 4 <sup>th</sup> week)	1 <sup>st</sup>	Pharmacopoeia: Introduction	1 <sup>st</sup> (Batch A)	To prepare and dispense simple syrup
	2 <sup>nd</sup>	IP, BP and its features	2 <sup>nd</sup> (Batch B)	To prepare and dispense simple syrup
	3 <sup>rd</sup>	USP, NF and Extra Pharmacopoeia	3 <sup>rd</sup> (Batch C)	To prepare and dispense simple syrup
		Chapter-2 Packaging materials		
3 <sup>rd</sup> (Nov. 2 <sup>nd</sup> week)	1 <sup>st</sup>	Types, selection criteria of packaging materials	1 <sup>st</sup> (Batch A)	To prepare and dispense piperazine citrate elixir
	2 <sup>nd</sup>	Advantages and disadvantages of glass and its types	2 <sup>nd</sup> (Batch B)	To prepare and dispense piperazine citrate elixir
	3 <sup>rd</sup>	Advantages and disadvantages of metal and its types	3 <sup>rd</sup> (Batch C)	To prepare and dispense piperazine citrate elixir
		Advantages and disadvantages of rubber and its types		
4 <sup>th</sup> (Nov. 3 <sup>rd</sup> week)	1 <sup>st</sup>	Advantages and disadvantages of plastic and its types	1 <sup>st</sup> (Batch A)	To prepare and dispense aqueous iodine solution
	2 <sup>nd</sup>	Chapter-3 Pharmaceutical Aids:	2 <sup>nd</sup> (Batch B)	To prepare and dispense aqueous iodine solution
	3 <sup>rd</sup>	Organoleptic agents	3 <sup>rd</sup> (Batch C)	To prepare and dispense aqueous iodine solution
		Preservatives: Definitions, advantages		
5 <sup>th</sup> (Nov. 4 <sup>th</sup> week)	1 <sup>st</sup>	Types of preservatives and uses	1 <sup>st</sup> (Batch A)	To prepare and dispense castor oil emulsion

	2 <sup>nd</sup>	Chapter-4 Unit operations: Introduction, objectives	2 <sup>nd</sup> (Batch B)	To prepare and dispense castor oil emulsion
	3 <sup>rd</sup>	Principle, construction and working of hammer mill	3 <sup>rd</sup> (Batch C)	To prepare and dispense castor oil emulsion
		Principle, construction and working of ball mill		
6 <sup>th</sup> (Dec. 1 <sup>st</sup> week)	1 <sup>st</sup>	Size separation: classification of powders as per IP	1 <sup>st</sup> (Batch A)	To prepare and dispense cod liver oil emulsion
	2 <sup>nd</sup>	Cyclone separator	2 <sup>nd</sup> (Batch B)	To prepare and dispense cod liver oil emulsion
	3 <sup>rd</sup>	Sieves and standards of sieves	3 <sup>rd</sup> (Batch C)	To prepare and dispense cod liver oil emulsion
		Mixing: Double cone blender		
7 <sup>th</sup> (Dec.. 2 <sup>nd</sup> week)	1 <sup>st</sup>	Turbine mixer	1 <sup>st</sup> (Batch A)	To prepare and dispense magnesium hydroxide mixture
	2 <sup>nd</sup>	Triple roller mill	2 <sup>nd</sup> (Batch B)	To prepare and dispense magnesium hydroxide mixture
	3 <sup>rd</sup>	Silverson mixer homogenizer	3 <sup>rd</sup> (Batch C)	To prepare and dispense magnesium hydroxide mixture
		Filtration: Introduction and theory		
8 <sup>th</sup> (Dec. 3 <sup>rd</sup> week)	1 <sup>st</sup>	Membrane filter	1 <sup>st</sup> (Batch A)	To prepare and dispense sulphur ointment
	2 <sup>nd</sup>	Sintered glass filter	2 <sup>nd</sup> (Batch B)	To prepare and dispense sulphur ointment
	3 <sup>rd</sup>	Drying: Introduction and applications	3 <sup>rd</sup> (Batch C)	To prepare and dispense sulphur ointment
		Working and functions of fluidized bed dryer		
9 <sup>th</sup> (Dec. 4 <sup>th</sup> week)	1 <sup>st</sup>	Process of freeze drying	1 <sup>st</sup> (Batch A)	To prepare and dispense cetrimide cream
	2 <sup>nd</sup>	Extraction: Definition, Classification	2 <sup>nd</sup> (Batch B)	To prepare and dispense cetrimide cream
	3 <sup>rd</sup>	Method and applications of extraction	3 <sup>rd</sup> (Batch C)	To prepare and dispense cetrimide cream
		Chapter-5 Tablets: Introduction, advantages and disadvantages		
10 <sup>th</sup> (Dec. 5 <sup>th</sup> week)	1 <sup>st</sup>	Coated and uncoated tablets	1 <sup>st</sup> (Batch A)	To prepare and dispense sodium alginate gel
	2 <sup>nd</sup>	Defects in tablets	2 <sup>nd</sup> (Batch B)	To prepare and dispense sodium alginate gel
	3 <sup>rd</sup>	Modified tablets	3 <sup>rd</sup> (Batch C)	To prepare and dispense sodium alginate gel
		Applications of modified tablets		

<b>11<sup>th</sup>(Jan. 3rd week)</b>	<b>1<sup>st</sup></b>	Capsules: Introduction, advantages and disadvantages	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense turpentine liniment
	<b>2<sup>nd</sup></b>	Hard and soft gelatin capsules	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense turpentine liniment
	<b>3<sup>rd</sup></b>	Liquid oral preparations: Introduction, Advantages and disadvantages	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense turpentine liniment
		Solution, syrups		
<b>12<sup>th</sup>(Jan. 4th week)</b>	<b>1<sup>st</sup></b>	Elixir: Introduction	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense white liniment BPC
	<b>2<sup>nd</sup></b>	Emulsions and its types	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense white liniment BPC
	<b>3<sup>rd</sup></b>	Formulation of emulsions	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense white liniment BPC
		Suspension, and its types		
<b>13<sup>th</sup>(Feb. 2nd week)</b>	<b>1<sup>st</sup></b>	Formulation of suspensions	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense effervescent powder granules
	<b>2<sup>nd</sup></b>	Dry powder for reconstitution	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense effervescent powder granules
	<b>3<sup>rd</sup></b>	Topical preparations: Introduction, advantages and disadvantages	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense effervescent powder granules
		Ointments and its types		
<b>14<sup>th</sup> (Feb. 3rd week)</b>	<b>1<sup>st</sup></b>	Mechanism of drug penetration in skin	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense dusting powder
	<b>2<sup>nd</sup></b>	Introduction to Creams	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense dusting powder
	<b>3<sup>rd</sup></b>	Introduction to pastes	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense dusting powder
		Introduction to Gels		
<b>15<sup>th</sup> (Feb. 4th week)</b>	<b>1<sup>st</sup></b>	Liniments and lotions	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense normal saline
	<b>2<sup>nd</sup></b>	Introduction to Suppositories and its types	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense normal saline
	<b>3<sup>rd</sup></b>	Introduction to pessaries and its types	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense normal saline
		Nasal preparations		
<b>16<sup>th</sup>(Mar. 1<sup>st</sup>week)</b>	<b>1<sup>st</sup></b>	Ear preparations		To prepare and dispense calcium gluconate injection
	<b>2<sup>nd</sup></b>	Powders and granules: Introduction	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense calcium gluconate injection

	<b>3<sup>rd</sup></b>	Insufflations	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense calcium gluconate injection
		Dusting powders		
<b>17<sup>th</sup>(Mar. 2nd week)</b>	<b>1<sup>st</sup></b>	Effervescent powders	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense tetracycline capsules
	<b>2<sup>nd</sup></b>	Effervescent granules	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense tetracycline capsules
	<b>3<sup>rd</sup></b>	Sterile formulations: Introduction, advantages and disadvantages	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense tetracycline capsules
		Injectables: advantages and disadvantages		
<b>18<sup>th</sup>(Mar. 3rd week)</b>	<b>1<sup>st</sup></b>	Types of injectables	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense paracetamol tablets
	<b>2<sup>nd</sup></b>	Eye drops and its formulation	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense paracetamol tablets
	<b>3<sup>rd</sup></b>	Eye ointments and its formulation	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense paracetamol tablets
		Immunological products: Introduction		
<b>19<sup>th</sup> (Mar. 4<sup>th</sup> week)</b>	<b>1<sup>st</sup></b>	Types of immunological products	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense calamine lotion
	<b>2<sup>nd</sup></b>	Introduction to sera and its manufacturing methods	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense calamine lotion
	<b>3<sup>rd</sup></b>	Introduction to vaccines and its manufacturing methods	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense calamine lotion
		Toxoids and its manufacturing methods		
<b>20<sup>th</sup> (Mar. 5<sup>th</sup> week)</b>	<b>1<sup>st</sup></b>	Chapter-6 Pharmaceutical manufacturing plants		To prepare and dispense shampoo
	<b>2<sup>nd</sup></b>	Basic structure of pharmaceutical manufacturing plants	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense shampoo
	<b>3<sup>rd</sup></b>	Layout of pharmaceutical manufacturing plants	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense shampoo
		Sections of pharmaceutical manufacturing plants		
<b>21<sup>st</sup> (Apr 1<sup>st</sup> week)</b>	<b>1<sup>st</sup></b>	Functions of various sections of pharmaceutical manufacturing plants	<b>1<sup>st</sup> (Batch A)</b>	To prepare and dispense cold cream
	<b>2<sup>nd</sup></b>	Activities of pharmaceutical manufacturing plants	<b>2<sup>nd</sup> (Batch B)</b>	To prepare and dispense cold cream
	<b>3<sup>rd</sup></b>	Applications of various pharmaceutical manufacturing plants	<b>3<sup>rd</sup> (Batch C)</b>	To prepare and dispense cold cream
		Quality control and quality assurance		

22 <sup>nd</sup> (Apr. 2 <sup>nd</sup> week)	1 <sup>st</sup>	Quality control and its significance	1 <sup>st</sup> (Batch A)	To study the various stages of tablet manufacturing processes
	2 <sup>nd</sup>	Concepts of quality control	2 <sup>nd</sup> (Batch B)	To study the various stages of tablet manufacturing processes
	3 <sup>rd</sup>	Quality assurance and its significance	3 <sup>rd</sup> (Batch C)	To study the various stages of tablet manufacturing processes
		Concepts of Quality assurance		
23 <sup>rd</sup> (Apr. 3 <sup>rd</sup> week)	1 <sup>st</sup>	cGMP: Introduction	1 <sup>st</sup> (Batch A)	To perform the quality control tests of emulsions
	2 <sup>nd</sup>	cGMP in Pharmaceutical industries	2 <sup>nd</sup> (Batch B)	To perform the quality control tests of emulsions
	3 <sup>rd</sup>	Introduction to concept of calibration		To perform the quality control tests of emulsions
		Types of calibration		
24 <sup>th</sup> (Apr. 4 <sup>th</sup> week)	1 <sup>st</sup>	Introduction to concept of validation	1 <sup>st</sup> (Batch A)	To perform the quality control tests of capsules
	2 <sup>nd</sup>	Types of validation	2 <sup>nd</sup> (Batch B)	To perform the quality control tests of capsules
	3 <sup>rd</sup>	Chapter-7 Novel drug delivery systems	3 <sup>rd</sup> (Batch C)	To perform the quality control tests of capsules
		Introduction, types of NDDS		
25 <sup>th</sup> (Apr. 5 <sup>th</sup> week)	1 <sup>st</sup>	Classification with examples	1 <sup>st</sup> (Batch A)	To perform the quality control tests of tablets
	2 <sup>nd</sup>	Advantages and disadvantages	2 <sup>nd</sup> (Batch B)	To perform the quality control tests of tablets
	3 <sup>rd</sup>	Challenges during NDDS	3 <sup>rd</sup> (Batch C)	To perform the quality control tests of tablets
		Applications of NDDS		
After onwards revised the queries regarding the syllabus.				