



**Faculty of Pharmacy**  
**Bachelor of Pharmacy (B. Pharm.)**  
**(W. E. F.: 2023-24)**  
**Document ID: SUTEPHB-01**

<b>Name of Faculty</b>	:	Faculty of Pharmacy
<b>Name of Program</b>	:	Bachelor of Pharmacy
<b>Course Code</b>	:	1BPH03
<b>Course Title</b>	:	Pharmaceutics - I
<b>Type of Course</b>	:	Basic Pharmaceutical Sciences
<b>Year of Introduction</b>	:	2023-24

<b>Prerequisite</b>	:	Zeal to learn the subject
<b>Course Objective</b>	:	This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.
<b>Course Outcomes</b>	:	At the end of this course, students will be able to:
	CO1	To <b>remember</b> the history of profession of pharmacy in India related with pharmacy education, career including industry and organization.
	CO2	To <b>know(Understand)</b> about the details of the prescription, concepts of dosage forms and incompatibilities.
	CO3	<b>Analyze</b> every parts and handling process of the prescription. Analyze the evaluation parameter of solid and semisolid dosage form.
	CO4	<b>Apply</b> the principle of posology for the dose calculation with respects of different factors. Apply the concept of dosage form for design(preparation) of various dosage form. Apply the displacement value for preparation of suppository.
	CO5	To <b>understand</b> the concepts of Biphasic and Monophasic dosage form including suspension, emulsion.
	CO6	To <b>know</b> about the concept of solid and semisolid dosage form..

**Teaching and Examination Scheme**

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
L	T	P		Theory Marks		Practical Marks		Total Marks
			C	SEE	CIA	SEE	CIA	
03	01	04	06	75	25	35	15	150

*Legends: L-Lecture; T-Tutorial/Teacher Guided Theory Practice; P - Practical, C - Credit, SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)*

**Course Content**

Unit No.	Topics	Teaching Hours	Weightage	Mapping with COs
1	<p><b>Historical background and development of profession of pharmacy:</b> History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia.</p> <p><b>Dosage forms:</b> Introduction to dosage forms, classification, and definitions</p> <p><b>Prescription:</b> Definition, Parts of prescription, handling of Prescription and Errors in prescription.</p> <p><b>Posology:</b> Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area.</p>	10	22.22%	CO1 CO2 CO3 CO4
2	<p><b>Pharmaceutical calculations:</b> Weights and measures – Imperial &amp; Metric system, Calculations involving percentage solutions, allegation, proof spirit and isotonic solutions based on freezing point and molecular weight.</p> <p><b>Powders:</b> Definition, classification, advantages and disadvantages, Simple &amp; compound powders – official preparations, dusting powders, effervescent, efflorescent, and hygroscopic powders, eutectic mixtures. Geometric dilutions.</p> <p><b>Liquid dosage forms:</b> Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques</p>	10	22.22%	CO2 CO4
3	<p><b>Monophasic liquids:</b> Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions.</p> <p><b>Biphasic liquids:</b></p> <p><b>Suspensions:</b> Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated</p>	10	22.22%	CO4 CO5

	suspension & stability problems and methods to overcome. <b>Emulsions:</b> Definition, classification, emulsifying agent, test for the identification of type of Emulsion, Methods of preparation & stability problems and methods to overcome.			
4	<b>Suppositories:</b> Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories. <b>Pharmaceutical incompatibilities:</b> Definition, classification, physical, chemical, and therapeutic incompatibilities with examples.	08	17.78%	CO3 CO4 CO6
5	<b>Semisolid dosage forms:</b> Definitions, classification, mechanisms, and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams, and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosages forms	07	15.56%	CO3 CO6

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
<b>Weightage</b>	<b>16.67</b>	<b>50</b>	<b>16.67</b>	<b>16.67</b>	<b>00</b>	<b>00</b>

*NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.*

#### Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Syrup: a) To Prepare and Submit Simple Syrup IP (20ml) b) To Prepare and Submit Compound syrup of Ferrous Phosphate BPC'68	04
2	Elixirs a) Piperazine citrate elixir b) Paracetamol pediatric elixir	04
3	Linctus a) Terpin Hydrate Linctus IP'66 b) Iodine Throat Paint (Mandles Paint)	04

4	Solutions: a) Strong solution of ammonium acetate, b) Cresol with soap solution, c) Lugol's solution	04
5	Suspensions: a) Calamine lotion, b) Magnesium Hydroxide mixture, c) Aluminium Hydroxide gel	04
6	Emulsions a) Turpentine Liniment, b) Liquid paraffin emulsion	08
7	Powders and Granules: a) ORS powder (WHO), b) Effervescent granules c) Dusting powder, d) Divided powders	08
8	Suppositories: a) Glycero-gelatin suppository, b) Cocoa butter suppository C) Zinc Oxide suppository	08
9	Semisolids: a) Sulphur ointment, b) Non-staining-iodine ointment with methyl salicylate, c) Carbopal gel	08
10	Gargles and Mouthwashes: a) Iodine gargle, b) Chlorhexidine mouthwash	08

#### Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Aseptic cabinet
2	Autoclave
3	Standard sieves no. 8, 10, 12, 22, 44, 66, 80
4	Clarity test apparatus
5	Hot plate

#### Suggested Learning Websites

Sr. No.	Name of Website
1	<a href="https://pci.nic.in/pdf/Syllabus_B_Pharm.pdf">https://pci.nic.in/pdf/Syllabus_B_Pharm.pdf</a>
2	<a href="https://www.aicte-india.org/downloads/bpharma.pdf">https://www.aicte-india.org/downloads/bpharma.pdf</a>
3	<a href="https://www.ipc.gov.in/">https://www.ipc.gov.in/</a>
4	<a href="https://www.ayush.gov.in/">https://www.ayush.gov.in/</a>
5	<a href="https://ayudmla.gujarat.gov.in/home.php">https://ayudmla.gujarat.gov.in/home.php</a>
6	<a href="https://www.fda.gov/">https://www.fda.gov/</a>
7	<a href="https://www.pharmacopoeia.com/">https://www.pharmacopoeia.com/</a>
8	<a href="https://ipapharma.org/">https://ipapharma.org/</a>
9	<a href="https://gpat.nta.nic.in/">https://gpat.nta.nic.in/</a>
10	<a href="https://drnaitikrivedi.com/">https://drnaitikrivedi.com/</a>
11	<a href="https://gdc4gpat.com/course/gpat/">https://gdc4gpat.com/course/gpat/</a>
12	<a href="https://niscpr.res.in/">https://niscpr.res.in/</a>
13	<a href="https://delnet.in/">https://delnet.in/</a>
14	<a href="https://ihubgujarat.in/">https://ihubgujarat.in/</a>
15	<a href="https://www.ssipgujarat.in/">https://www.ssipgujarat.in/</a>

**Reference Books**

<b>Sr. No.</b>	<b>Name of Reference Books</b>
1	H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi.
2	Carter S.J., Cooper and Gunn's-Dispensing for Pharmaceutical Students, CBS publishers, New Delhi.
3	M.E. Aulton, Pharmaceutics, The Science & Dosage Form Design, Churchill Livingstone, Edinburgh.
4	Indian pharmacopoeia.
5	British pharmacopoeia.
6	Lachmann. Theory and Practice of Industrial Pharmacy, Lea & Febiger Publisher, The University of Michigan.
7	Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott Williams, New Delhi.
8	Carter S.J., Cooper and Gunn's. Tutorial Pharmacy, CBS Publications, New Delhi.
9	E.A. Rawlins, Bentley's Text Book of Pharmaceutics, English Language Book Society, Elsevier Health Sciences, USA.
10	Isaac Ghebre Sellassie: Pharmaceutical Pelletization Technology, Marcel Dekker, INC, New York.
11	Dilip M. Parikh: Handbook of Pharmaceutical Granulation Technology, Marcel Dekker, INC, New York.
12	Francoise Nieloud and Gilberte Marti-Mestres: Pharmaceutical Emulsions and Suspensions, Marcel Dekker, INC, New York.