



Course Syllabus
Gyanmanjari Pharmacy College
Semester-1(B.Pharm.)

Subject: Pharmaceutics- I (BPHBP11303)

Type of course: Major

Prerequisite: NA

Rationale: Pharmaceutics is the discipline of pharmacy that deals with the process of turning a new chemical entity (NCE) or old drugs into a medication to be used safely and effectively by patients. It is also called the science of dosage form design. There are many chemicals with pharmacological properties, but need special measures to help them achieve therapeutically relevant amounts at their sites of action. Pharmaceutics helps relate the formulation of drugs to their delivery and disposition in the body. Pharmaceutics deals with the formulation of a pure drug substance into a dosage form.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
CI	T	P		Theory Marks		Practical Marks	CA	
			ESE	MSE	VP	ALA		
3	1	4	6	75	25	35	15	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Continuous Assessment:

(For each activity maximum-minimum range is 5 to 10 marks)

Sr. No	Active Learning Activities	Marks
1.	Assignment: Faculty will provide name of Pharmacopoeia and Student write about it and its specification and history and upload on moodle.	05
2.	Terminology and abbreviations: Faculty will provide 10 Latin abbreviations and Students write their full form and meaning and upload on moodle.	05
3.	Calculation : Students are ask to draw label and write labeling conditions, applications, master formulas for the given formulations and upload on moodle.	05
Total		15



Course Content:

Sr. No	Course content	Hrs	% Weightage
1	<p>Historical background and development of profession of pharmacy: 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>Dosage forms: Introduction to dosage forms, classification and definitions</p> <p>Prescription: Definition, Parts of prescription, handling of Prescription and Errors in prescription</p> <p>Posology: Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area</p>	10	23
2	<p>Pharmaceutical calculations: Weights and measures – Imperial & Metric system, Calculations involving percentage solutions, allegation, proof spirit and isotonic solutions based on freezing point and molecular weight</p> <p>Powders: Definition, classification, advantages and disadvantages, Simple & compound powders – official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions</p> <p>Liquid dosage forms: Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques</p>	10	23
3	<p>Monophasic liquids: Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions.</p> <p>Biphasic liquids:</p> <p>Suspensions: Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome.</p> <p>Emulsions: Definition, classification, emulsifying agent, test for the Identification of type of Emulsion, Methods of preparation & stability problems and methods to overcome.</p>	08	19
4	<p>Suppositories: Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories</p> <p>Pharmaceutical incompatibilities: Definition, classification, physical, chemical and therapeutic incompatibilities with examples.</p>	08	19

5	Semisolid dosage forms: 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	16
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Suggested Specification table with Marks (Theory):75

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	20%	40%	20%	10%	10%	

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

Course Outcome:

After learning the course the students should be able to:	
CO1	Understand List the salient features of different Pharmacopoeias.
CO2	Explain various procedures involved in formulation and evaluation of different types of dosage forms.
CO3	Calculate different Pharmaceutical calculations involved in formulation.
CO4	Know fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.
CO5	Identify various incompatibilities in handling of Prescriptions.

List of Practical

(Minimum-10 practical):

1. Syrups:

a) Syrup IP'66 b) Compound syrup of Ferrous Phosphate BPC'68

2. Elixirs:

a) Piperazine citrate elixir b) Paracetamol pediatric elixir

3. Linctus

a) Terpin Hydrate Linctus IP'66 b) Iodine Throat Paint (Mandles Paint)

4. Solutions:

a) Strong solution of ammonium acetate b) Cresol with soap solution c) Lugol's solution

5. Suspensions:

a) Calamine lotion b) Magnesium Hydroxide mixture c) Aluminium Hydroxide gel

6. Emulsions:



a) Turpentine Liniment b) Liquid paraffin emulsion

7. Powders and Granules

a) ORS powder (WHO) b) Effervescent granules c) Dusting powder d) Divded powders

8. Suppositories

a) Glycero gelatin suppository b) Coca butter suppository c) Zinc Oxide suppository

8. Semisolids

a) Sulphur ointment b) Non staining-iodine ointment with methyl salicylate c) Carbopal gel

9. Gargles and Mouthwashes

a) Iodine gargle b) Chlorhexidine mouthwash

Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

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 & Fibiger 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. Françoise Nieloud and Gilberte Marti-Mestres: Pharmaceutical Emulsions and Suspensions, Marcel Dekker, INC, New York.
13. Subrahmanyam C.V.S. Laboratory manual of Pharmaceutics. Delhi: vallabh publications; 2006.
14. 2. Carter S.J. Cooper & Gunns Dispensing for Pharmaceutical students. 12th ed. New Delhi: CBS Publication; 2008.
15. Metha R.M. Dispensing Pharmacy. New Delhi: Vallabh Publication; 2006.