



Program	Diploma in Pharmacy (D.Pharm)	Year - 1
Type of Course	-	
Prerequisite		
Course Objective	-	
Effective From A.Y.	2024-25	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				External Marks (T)	Internal Marks (T)	External Marks (P)	Internal Marks (P)	
3	1	3	8	80	20	80	20	200

SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
1	Unit 1 <ul style="list-style-type: none"> History of the profession of Pharmacy in India in relation to Pharmacy education, industry, pharmacy practice, and various professional associations. Pharmacy as a career Pharmacopoeia: Introduction to IP, BP, USP, NF and Extra Pharmacopoeia. Salient features of Indian Pharmacopoeia 	7	8
2	Unit 2 <ul style="list-style-type: none"> Packaging Materials: Types, selection criteria, advantages and disadvantages of glass, plastic, metal, rubber as packaging materials 	5	7
3	Unit 3 <ul style="list-style-type: none"> Pharmaceutical Aids: Organoleptic (Colouring, flavouring, and sweetening) agents Preservatives: Definition, types with examples and uses 	3	4
4	Unit 4 <p>Unit Operation: Definition, objectives/applications, principles, construction, and workings of:</p> <ul style="list-style-type: none"> Size reduction: hammer mill and ball mill Size separation: Classification of powders according to IP, Cyclone separator, Sieves and standards of sieves. Mixing: Double cone blender, Turbine mixer, Triple roller mill and Silverson mixer homogenizer Filtration: Theory of filtration, membrane filter and sintered glass filter Drying: working of fluidized bed dryer and process of freeze drying Extraction: Definition, Classification, method, and applications 	9	12
5	Unit 5 <ul style="list-style-type: none"> Tablets-coated and uncoated, various modified tablets (sustained release, extended-release, fast dissolving, multi-layered, etc.) Capsules- hard and soft gelatine capsules Liquid oral preparations-solution, syrup, elixir, emulsion, suspension, dry powder for reconstitution Topical preparations- ointments, creams, pastes, gels, liniments and lotions, suppositories, and pessaries Nasal preparations, Ear preparations Powders and granules- Insufflations, dusting powders, effervescent powders, and effervescent granules Sterile formulations- Injectables, eye drops and eye ointments Immunological products: Sera, vaccines, toxoids, and their manufacturing methods 	41	55
6	Unit 6 <ul style="list-style-type: none"> Basic structure, layout, sections, and activities of pharmaceutical manufacturing plants Quality control and quality assurance: Definition and concepts of quality control and quality assurance, current good manufacturing practice (cGMP), Introduction to the concept of calibration and validation 	5	7



Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
7	Unit 7 <ul style="list-style-type: none">Novel drug delivery systems: Introduction, Classification with examples, advantages, and challenges	5	7
Total		75	100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy					
Level	Remembrance	Understanding	Application	Analyze	Evaluate
Weightage	40	30	10	10	10

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.

Course Outcomes	
At the end of this course, students will be able to:	
C01	Knowledge and understanding about different dosage forms and their formulation aspects
C02	Knowledge and understanding about advantages, disadvantages and quality control tests of different dosage forms
C03	Knowledge and understanding about importance of quality assurance and good manufacturing practices
C04	Ability to calculate working formulas, prepare and dispense dosage forms, design appropriate labels, and perform basic quality control tests.

Reference Books	
1.	Pharmaceutical engineering principles and practices By C.V.S Subrahmanyam et al
2.	Dispensing Pharmacy By R.M Mehta
3.	Pharmaceutics (TextBook) By Dr. Nilima A. Thombre, Eknath D Ahire, Dr. Sanjay J. Kshirsagar Technical Publication
4.	THE THEORY AND PRACTICE OF INDUSTRIAL PHARMACY By LACHMEN/LIBERMAN'S CBS PUBLISHER and DISTRIBUTORS 4TH, Pub. Year 2009
5.	Pharmaceutics (TextBook) By Dr. Ashok Hajare Nirali Publication
6.	Pharmaceutics Formulation and Dispensing Pharmacy By S Bharath
7.	Indian Pharmacopoeia By Government of India, Ministry of Health and Family Welfare Indian Pharmacopoeia Commission, Ghaziabad, India, Pub. Year 2022
8.	History of Pharmacy in India By Dr. Harikishan Singh
9.	A Textbook of Pharmaceutical Formulation (TextBook) By B.M Mithal Vallabh Prakashan
10.	Bentleys' Textbook of Pharmaceutics (TextBook) By E.A Rawlins



List of Practical

1.	To Handle and refer the official references: Pharmacopoeia, Formularies etc for retrieving formulas, procedures etc
2.	(A) To prepare and dispense simple syrup (B) To prepare and dispense Ferrous sulphate syrup
3.	To prepare and dispense Piperazine citrate elixir
4.	To prepare and dispense aqueous iodine solution
5.	To prepare and dispense Calamine lotion
6.	To prepare and dispense Magnesium Hydroxide mixture
7.	(A) To prepare and dispense Turpentine liniment (B) To prepare and dispense White liniment BPC
8.	(A) To prepare and dispense Simple ointment base (B) To prepare and dispense Sulphur ointment
9.	(A) To prepare and dispense castor oil emulsion (B) To prepare and dispense Liquid paraffin castor oil emulsion
10.	To prepare and dispense cetrimide cream
11.	To prepare and dispense Sodium alginate gel
12.	(A) To prepare and dispense Effervescent powder granules (B) To prepare and dispense Dusting powder
13.	(A) To prepare and dispense Normal Saline (B) To prepare and dispense Calcium Gluconate Injection
14.	To prepare and dispense Tetracycline capsules
15.	To prepare and dispense Paracetamol Tablets
16.	Formulation of cold cream
17.	Formulation of vanishing cream
18.	Formulation of shampoo
19.	Formulation of Lotion
20.	Formulation of toothpaste
21.	To demonstrate of various stages of tablet manufacturing process
22.	To demonstrate methods of usage and storage of all dosage forms including special dosage such as different type of inhalers, spacers, insulin pens
23.	To Demonstrate QC tests and evaluation of common dosage forms like tablets, capsules, emulsion, sterile injections as per the monograph



List of Tutorial

1.	History of Pharmacy, Pharmacy as career
2.	Pharmacopoeia
3.	Pharmacopoeia, Packaging materials
4.	Types of packaging materials
5.	Pharmaceutical aids
6.	Unit operations and size reduction, size separation
7.	Mixing, Filtration
8.	Filtration, Drying
9.	Extraction, Tablets
10.	Tablets
11.	Evaluation and defects of Tablets
12.	Capsules
13.	Liquid oral preparations
14.	Liquid oral preparations, Topical preparations
15.	Topical preparations
16.	Topical preparations, nasal preparations, ear preparations
17.	Powders and granules
18.	Sterile formulations
19.	Sterile formulations, eye drops and eye ointment
20.	Immunological products
21.	Pharmaceutical manufacturing plant
22.	Quality Assurance, cGMP and Calibration
23.	Validation and Novel Drug Delivery System
24.	Novel Drug Delivery System
25.	Challenges and Novel Drug Delivery System