

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**PHARM.D**  
**3<sup>rd</sup> Year**

**Subject Name: PHARMACEUTICAL FORMULATIONS**

**Subject Code: 838806**

**Scope:** Scope and objectives of the course: Subject deals with the formulation and evaluation of various pharmaceutical dosage forms

**Objectives:** Upon completion of the subject student shall be able to (Know, do, appreciate) –

a. understand the principle involved in formulation of various pharmaceutical dosage forms; b. prepare various pharmaceutical formulation; c. perform evaluation of pharmaceutical dosage forms; and d. understand and appreciate the concept of bioavailability and bioequivalence, their role in clinical situations.

<b>Sr.</b>	<b>Topic</b>	<b>Hr</b>
1.	Pharmaceutical dosage form- concept and classification	3
2.	<b>Tablets:</b> Formulation of different types of tablets, tablet excipients, granulation techniques quality control and evaluation of tablets. Tablet coating, Type of coating, quality control tests for coated tablet	12
3.	<b>Capsules;</b> Production and filling of hard gelatin capsules, Raw material for shell, finishing, quality control tests for capsules. Production and filling of soft gelatin capsules, quality control tests for soft gelatin capsules	8
4.	<b>Liquid orals:</b> Formulation and evaluation of suspensions, emulsions and solutions. Stability of these preparations	7
5.	<b>Parenterals</b> Introduction Containers used for Parenterals (including official tests) Formulation of large and small volume Parenterals Sterilization	12
6.	<b>Ophthalmic preparations (Semi – Solids):</b> Introduction and classification Factors affecting absorption and anatomy of skin Packaging storage and labeling, Ointments Types of Ointment Base Preparation of ointment, Jellies Types of jellies Formulation of jellies Suppositories, Method of preparation, Types Packaging	8
7.	Definition and concept of <b>Controlled and novel Drug delivery systems</b> with available examples, viz. parenteral, trans dermal, buccal, rectal, nasal, implants, ocular	10

**List of Experiments :**

**1. Manufacture of Tablets** a. Ordinary compressed tablet-wet granulation b. Tablets prepared by direct compression. c. Soluble tablet. d. Chewable tablet.

**2. Formulation and filling of hard gelatin capsules**

**3. Manufacture of parenterals** a. Ascorbic acid injection b. Calcium gluconate injection c. Sodium chloride infusion. d. Dextrose and Sodium chloride injection/ infusion.

**4. Evaluation of Pharmaceutical formulations (QC tests)** a. Tablets b. Capsules c. Injections

**5. Formulation of two liquid oral preparations and evaluation by assay** a. Solution: Paracetamol Syrup b. Antacid suspensions- Aluminum hydroxide gel

**6. Formulation of semisolids and evaluation by assay** a. Salicylic acid and benzoic acid ointment b. Gel formulation Diclofenac gel

**7. Cosmetic preparations** a. Lipsticks b. Cold cream and vanishing cream c. Clear liquid shampoo d. Tooth paste and tooth powders.

**8. Tablet coating (demonstration)**

**Reference books (Theory)**

- a. Pharmaceutical dosage forms, Vol, I,II and III by lachman
- b. Rowlings Text book of Pharmaceutics
- c. Tutorial Pharmacy – Cooper &Gun
- d. Remington's Pharmaceutical Sciences
- e. USP/BP/IP