CHPE05 GENERAL PHARMACY

COURSE OBJECTIVES:

1. To impart fundamental knowledge on various calculations used in pharmaceutical formulation, packaging and labeling requirements and educate on various extraction methods for active crude drug extraction.
2. To impart a fundamental knowledge on the art and science of pharmaceutical formulations, prerequisites, ingredients, unit operations and excipients in different types of dosage forms.
3. To understand various types of liquid dosage forms including monophasic and biphasic systems with emphasis on HLB system and key excipients.
4. To educate about liquid concentrate/semisolid and aerosol formulations, production and packaging along with applications.

COURSE OUTCOMES:

After successful completion of the course, the students are able to

1. Perform the calculations required for extraction methods, formulations, packaging materials used and labeling requirements.
2. Explain the different types of pharmaceutical formulations, unit operations and packaging requirements.
3. Demonstrate monophasic and biphasic liquid preparations depending on formulation prerequisites and HLB scale.
4. Prepare liquid concentrates, semisolid and liquid-gas dosage forms for potential applications.

UNIT I [CO:1] **(12)**

Units and Measures: Systems of Weights and Measures-Metric and Imperial systemsâ€“ Percentage calculations and adjustment of products-Inter-conversions-Use of alligation method in calculations - Isotonic solutions and proof spirits - Weighing -Selection and care of Weights and balances. Calculations involving displacement value.

Extraction Methods for crude drugs: Percolation (various types including processes for concentrated preparations, constant hot percolation), maceration (various types including processes for organized and unorganized drugs, for concentrated preparations, double and triple maceration processes), Decoction.

Packaging and Labelling of Pharmaceuticals: Desirable features of a container -Types of containers - Study of glass and plastics as materials for containers and rubber as a material for closures - their merits and demerits-Labeling requirements.

UNIT II [CO:2] **(12)**

PharmaceuticalDosageForms: Introductionandclassification-Definitionsand characteristics of different dosage forms - Formulation and its purpose.

Unit Operations in Pharmaceutical Formulations: Mixing, Blending, Grinding, Sieving, Drying, Filling and Packaging.

Formulation of Additives: Excipients/fillers/solvents, Vehicles for Liquids, Antioxidants, Preservatives, Colouring agents, Sweetening and flavouring agents in Liquid dosage forms.

UNIT III [CO:3] **(12)**

Liquid Dosage forms: Introduction, classification and formulation prerequisites.

Monophasic Liquid dosage forms; Introduction, formulation and uses of Solutions, Aromatic Waters, Spirits, Syrups, Elixirs, Dry Syrups, Mixtures.

Liquid formulation for tropical uses: Lotions, Liniments, throat paints, gargles, mouthwashes, glycerins, collodions, Ear drops, Nasal drops and Sprays, Douches - preparations.

Biphasic liquid dosage Forms: Hydrophilicâ€“lipophilic balance (HLB) Scale, Surfactant and plasticizers. Suspensions and Emulsion: Introduction, Types, Ideal requirements, additives and formulation methods and applications.

UNIT IV [CO:4] **(12)**

Liquid Concentrate and semisolid dosage forms: Liquid Concentrate - Introduction, Types: Medicated and non-medicated; formulations - gelatin shells and capsules. Application: external and internal.

Suppositories: Definition, types and excipients; bases and types, formulation methods and applications.

Semisolid dosage forms: Definitions, classification, excipients and formulation prerequisites of ointments, pastes, creams and gels.

Liquid-Gas formulation: Aerosols: Introductions to aerosol system and types. Propellant: definition and types. Two phase versus three phase system. Solvent, Container and Uses: external versus internal.

LEARNING RESOURCES:

TEXT BOOK(s):

1. Introduction to General Pharmacy, Gaurav Agarwal.
2. A T. B. of General and Dispensing Pharmacy, Kambham Venkateswarlu and N. Devanna.
3. Pharmaceutical Dosage Form: Basics and Beyond, Kamlesh J Wadher and Milind J Umekar, 2019, PharmaMed Press 2017

REFERENCE BOOK(s):

1. Theory and Practice of Industrial Pharmacy, Lachmann. Lea & Febiger Publisher, The University of Michigan.
2. Pharmaceutical Sciences, Remingtonâ€™s, 21st Edition.