SUBJECT - PHARMACEUTICS - I

Branch/Discipline – Pharmacy

Minimum Number of class tests to be conducted - 3

Theory (75 hours)

Course Contents –

1. Introduction of different dosage forms. Their classification with examples-their relative Applications. Familiarization with new drug delivery systems.
2. Introduction to Pharmacopoeias with new drug delivery systems.
3. Metrology-Systems of weights and measures. Calculations including conversion from one to another system, Percentage calculations and adjustment of products. Use of allegation method in calculations. Isotonic solutions.
4. Packaging 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. Introduction to aerosol packaging.
5. Size reduction- Objectives, and factors affecting size reduction, methods of size reduction-Study of hammer mill, ball mill, Fluid energy Mill and Disintegrator.
6. Size separation-Size separation by sifting. Official standards for powders. Sedimentation Methods of size separation. Construction and working of Cyclone separator.
7. Mixing and Homogenization- Liquid mixing and power mixing, Mixing of semisolids. Study of silvers on Mixer-Homogeniser, Planetary Mixer Agitated Powder mixer, Triple roller Mill, Propeller Mixer, Colloid mill and hand Homoeniser. Double cone mixer.
8. Clarification and Filtration-Theory of filtration, Filter media: Filter aids and selection of filters. Study of the following.
9. Extraction and Galenicals (a) Study of percolation and maceration and their modifications, continuous hot retraction-
10. Heat Processes:- Evaporation, Definition, factor's affecting evaporation – Study of evaporating Still and evaporating Pan.
11. Distillation:- Simple Distillation and fractional distillation, Steam distillation and vaccum distillation Study vaccum Still, Preparation of Puri fied water I.P. and water fpr Injection I.P. Construction and working of The Still used for the same.
12. Introduction to drying processes – Study of Tray Dryers: Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer.

13. Sterilization – Concept of sterilization and its differences from disinfections – Thermal resistance of microorganisms. Detailed study of the following sterilization processes.
    (i) Sterilization with moist heat,
    (ii) Dry heat sterilization,
    (iii) Sterilization by radiation,
    (iv) Sterilization filtration and
    (v) Gaseous sterilization

    Aseptic techniques – Application of sterilization processes in hospitals particularly with reference to surgical dressings and intravenous fluids. Precautions for safe and effective handling of sterilization equipment.
14. Processing of Tablets- Definition, Different types of compressed tablets and their properties. Process involved in the production of tablets: Tablets excipients; Defects in tablets; Evaluation Tablets; Physical standards including Disintegration and dissolution. Tablet coating-Sugar Coating, film coating, enteric coating and micro encapsulation (Tablet coating may be dealt in an elementary manner)
15. Processing of Capsules-Hard and soft gelatin capsules different sizes of capsules; filling of capsules; handling and storage of capsules. Special applications of capsules.
16. Study of immunological products like sera, vaccines, toxoids and their preparations.

PRACTICAL (100 hours)

Preparation (minimum number stated against each) of the following categories illustrating different techniques involved.

1.	Aromatic waters	3
2.	Solutions	4
3.	Spirits	2
4.	Tinctures	4
5.	Extracts	2
6.	Creams	2
7.	Cosmetic Preparations	3
8.	Capsules	2
9.	Tablets	2
10.	Preparations involving sterilization	2
11.	Ophthalmic preparations	2
12.	Preparations involving aseptic techniques	2

Books Recommended: (Latest editions)

1. Remington's Pharmaceutical Science
2. The Extra Pharmacopoeia- Martindale