B.Pharm 2nd Semester

Pharmaceutics-II (Theory) 36 hours

UNIT-I

1. Size reduction- objective, mechanism, factors affecting size reduction, methods of size reduction- study of different mills and their modifications.
2. Size separation- shifting, sedimentation methods, official grades of powders.
3. Mixing and Homogenization- Liquid Mixing, powder mixing and semisolid mixing, mixing equipments, their mechanism, merits and demerits. Process controlled mixer cum granulator. Dimixing.
4. Clarification and Filtration- Theory of filtration, Filter media, Filter aids and selection of filters, Filtration Equipments, air filtration (pre filter, HEPA filters), aseptic filtration.

UNIT-II

5. Heat processes- Definitions and applications, Evaporation, simple distillation, including entertainment preventing design including entertainment preventing design, Fractional distillation, vaccum distillation, steam distillation and azeotropic distillation, principle of rectification and calculation of no. of theoretical plates required in rectification process.
6. Drying – Moisture content and rate of drying, drying curve, mechanism, function and application of different dryers (Tray spray, drum and fluidized bed dryer etc.), phase diagram of water, freeze dryer, infrared drying, desiccation and drying.

PRACTICAL 36 hours

Experiments are to be covered illustrating the technique, size reduction, size separation, mixing, filtration, evaporation , distillation and drying.

Recommended Books:-

1. I.P, B.P., U.S.P.
2. Remington's Pharmaceutical Sciences
3. Tutorial Pharmacy by copper and Gunn.

SEMESTER-II

Pharm Chemistry-II 36 hrs

Theory

UNIT-I

1. Atomic orbitals, electronic configurations, hybridization, SP, SP^2 & SP^3. Molecular orbital. Bonding and anti bonding orbitals. Polarity of bonds, dissociation energy, inter molecular force of attraction.
2. Classification and nomenclature of organic compounds.
3. Alkanes, Alkenes and Alkynes, Dienes.
4. Alicylic hydrocarbons.
5. Alkyl halides, Hydroxy compounds, carbonyl compounds, carboxylic acids, Ethers.

UNIT-II

1. Aromatic compounds- Benzene and homologues.
2. Arenes, Aryl halides, Electrophilic and Nucleophilic aromatic substitution.
3. Phenols and its derivatives.
4. Aromatic amines, aromatic alcohol, aldehyde, ketones, polynucleus hydrocarbon.
5. Structural, optical and geometrical isomerism. Basic concept on stereo chemistry and R.S. configuration and their importance in pharmacy.

36 hrs.

Practical

1. Identification of organic compounds based on detection of elements, determination of physical constants, group solubility, functional group determination, and preparation of derivatives.

SEMESTER-II 36 hrs.

Anatomy, Physiology & Health Education (APHE)-I

1.2.5. Theory

UNIT-I

1. Scope of anatomy and physiology and basic terminology used in these subjects.
2. Structure of cell, its components and their functions.
3. Elementary Tissues of the Human Body: Epithelial, connective muscular and nervous tissues, their sub-types and their characteristics.
4. Osseous system: Structure, composition and functions of skeleton. Classification of joints, types of movements of joint, disorders of joints.
5. Skeletal Muscles: Gross anatomy, physiology of muscle contraction, physiological properties of skeletal muscles and their disorders.

UNIT-II

6. Haemopoietic System: composition and functions of blood and its elements, their disorders, blood groups and their significance, mechanism of coagulation, disorders of platelets and coagulation.
7. Lymph and Lymphatic System: Composition, formulation and circulation of lymph, disorders of lymph and lymphatic system. basic physiology and functions of spleen.
8. Cardiovascular System: Basic anatomy of the heart, physiology of heart, blood vessels and circulation. Basic understanding of cardiac cycle, heart sounds and understanding of cardiac cycle, heart sounds and electrocardiogram. Blood pressure and its regulation.
9. Concept of Health, determinants of health, concept of disease, Natural history of diseases, concept of prevention of diseases. Nutrition and Health, Nutritional supplementation.
10. Demography cycle and Family planning.

Practical 36 hrs.

1. Study of human skeleton.
2. Study of different systems with the help of charts and models.
3. Microscopic study of different tissues.
4. Estimation of hemoglobin in blood. Determination of bleeding time, clotting time, R.B.C. count. Total leukocyte count. D.L.C. & E.S.R.
5. Recording of body temperature, pulse rate and blood pressure.

Syllabus for B. Pharmacy

SEMESTER- II

Pharmaceutical Analysis- I **UNIT- I.**

1.1.1. Theory 36 hrs

1. Significance of quantitative analysis in quality control, Different techniques of analysis, Preliminary ideas, definitions, Significant figures, rules for retaining significant digits, types of errors, statistical sampling method, Mean deviation, Standard deviation, Statistical treatment of small data sets, Selection of sample, Precision and accuracy, Fundamental of volumetric analysis, methods of expressing concentration, primary and secondary standards.

2. Acid Base Titrations: Acid base concepts, role of solvent-aqueous and non aqueous, Relative strengths of acids and bases, Ionization, Law of mass action, Ionic product of water, pH, Hydrolysis of salts, Henderson- Hesselbach equation, Buffer solutions, Neutralization curves, Acid base indicators, Theory of indicators, Choice of indicators, Mixed indicators.

3. Oxidation Reduction Titrations: concepts of oxidation and reduction, Redox reactions, Strengths and equivalent weights of oxidizing and reducing agents, Theory of redox titrations, Redox indicators, redox potential, Measurement of electrode potential, Oxidation- reduction curves, Iodimetry and Iodometry, Titrations involving ceric sulphate, Potassium iodate, potassium bromate, potassium permanganate, titanous chloride and sodium 2, 6-dichlorophenol indophenol.

UNIT-II

4. Precipitation Titrations: Precipitation reactions, solubility products, effect of acids, temperature and solvent upon the solubility of a precipitate, common ion effect Argentometric titrations and titrations involving ammonium or potassium thiocyanate, mercuric nitrate Indicators, Gay-lussae method, Mohr's method, Volhard's method and Fajan's method.

5. Gravimetric Analysis: Precipitation techniques, solubility products. The colloidal state, supersaturation co-precipitation, post precipitation Digestional washing of the precipitate, Filtration, Filter papers and crucibles, Thermogravimetric curves, specific examples like barium sulphate, aluminium as aluminium oxide, calcium as calcium oxalate and magnesium as magnesium pyrophosphate, organic precipitants.

Practical: 36 hrs

The students should be introduced to the main analytical tools through demonstrations. They should have a clear understanding of a typical analytical balance, the requirements of a good balance, weights, care and use of balance, methods of weighing and errors in weighing. Sensitivity of balance and minimum weighing amount. The students should also be acquainted with the general apparatus required in various analytical procedures, G.L.P.

1. Standardization of analytical weights and calibration of volumetric apparatus.

2. Acid Base Titrations: Preparation and standardization of acids and bases, some exercises related with determination of acids and bases separately or in mixture form, some official assay procedures e.g. boric acid should also be covered.

3. Oxidation Reduction Titrations: Preparation and standardization of some redox titrants e.g. potassium permanganate, potassium dichromate, iodine, sodium thiosulphate, etc. Some exercises related to determination of oxidizing and reducing agents in the sample shall be covered. Exercises involving potassium iodate, potassium bromate, iodine solution, titanous chloride, sodium 2, 6-dichlorophenol indophenol and ceric ammonium sulphate.

4. Precipitation titrations: Preparation and standardization of titrants like silver nitrate and ammonium thiocyanate, titrations according to Mohr's, Volhard's and Fajan's methods.

5. Gravimetric Analysis: Preparation of gooch crucible for filtration and use of sintered glass crucible, determination of water of hydration, some exercises related to gravimetric analysis should be covered.