

Second Year B.Pharm (IV Semester)

241T Physical Pharmaceutics-II

Students will able to Know

- CO 1:** Explain concept of rheology & thixotropy, types of flow, methods to determine it, how concept of it used to increase the stability of formulation & become important tool for evaluation of formulations.
- CO 2:** Elaborate concept of stability with its application in stabilization of dosage form, explain how to prevent degradation, effect of temperature on degradation of drugs & how it is used in accelerated stability studies.
- CO 3:** Explain the meaning, types & applications of colloids, concept of Zeta & Nernst potential, stability of colloids & DLVO theory.
- CO 4:** Explain Principles, methods & applications of surface & interfacial tension, micromeretics in evaluation, stabilization & designing of dosage form.

241P Physical Pharmaceutics-II

Students will able to Know

- CO 1:** To determine viscosity of simple liquids dispersed solutions & semisolids by using Ostwald & Brookfield Viscometer.
- CO 2:** To determine surface tension of liquids, Critical Micelle Concentration (CMC), HLB, Cloud point & Krafft point of given surfactant & its applications
- CO 3:** To determine order of reaction, energy of activation & relative strength of acids.
- CO 4:** To determine specific surface area by adsorption, particle size & size distribution by sieving & microscopic method.

242T Pathophysiology and Clinical Biochemistry

Students will able to Know

- CO 1:** Understand definition, epidemiology, etiology and clinical manifestation of various disorders
- CO 2:** Understand diagnosis and plan of treatment for various diseases and disorders
- CO 3:** Ability to know the techniques of biological fluid collection and separation.

242P Pathophysiology and Clinical Biochemistry

Students will able to Know

- CO 1:** Ability to determine abnormal constituents of urine, sugar, protein, bile salt, ketone bodies
- CO 2:** Understand general techniques of collection and recording of specimen of serum/plasma
- CO 3:** To understand basic histopathology

243T Pharmaceutical Organic Chemistry-IV

Students will able to Know

- CO 1:** Know the structures with numbering of heterocyclic compounds, chemistry, methods of preparation and chemical reactions of five, six membered and fused heterocyclic rings.
- CO 2:** Understand general rules and guidelines involved in retro-synthesis and construct retro- synthesis of pharmaceutically important compounds.
- CO 3:** Explain various techniques of combinatorial chemistry and understand applications of combinatorial chemistry in the speedy synthesis of organic compounds and peptides.
- CO 4:** Comprehend the techniques of microwave assisted synthesis and explain applications of microwave assisted synthesis in pharmaceutical research.

243P Pharmaceutical Organic Chemistry-IV

Students will able to Know

- CO 1:** Perform qualitative analysis of solid-liquid and liquid-liquid organic binary mixtures, separate and purify of binary mixtures of organic compounds.
- CO 2:** Synthesize heterocyclic compounds and know reaction mechanisms.
- CO 3:** Perform quantitative determination of different reactive groups.

244T Pharmaceutical Analysis-II

Students will able to Know

- CO 1:** Understand the basic principle, instrumentation and application of various analytical techniques used in pharmaceutical industry.
- CO 2:** Acquire knowledge about quality control of chemical, drug intermediate, APIs, excipients.
- CO 3:** Demonstrate the planning, conducting, evaluation and reporting results of investigations of pharmaceutical formulation and cosmetic product with appropriate use of literature and secondary data.

244P Pharmaceutical Analysis-II

Students will able to Know

- CO 1:** To understand the interpretation of data obtain through experimentation and report the result as per the regulatory requirement
- CO 2:** To understand safety measure while handling instrument, chemical and apparatus.
- CO 3:** To perform calibration of various analytical instruments for separation/isolation and assay of various chemicals, drug intermediate, API as per pharmacopeial standard

245T Pharmacognosy and Phytochemistry-II

Students will able to Know

- CO 1:** Systematic pharmacognostic study of alkaloids (definition, classification, properties, nomenclature, chemistry) history and contribution to modern medicines
- CO 2:** Systematic pharmacognostic study of terpenoids and resins (definition, classification, properties, nomenclature, chemistry) history and contribution to modern medicines

245P Pharmacognosy and Phytochemistry-II

Students will able to Know

- CO 1:** Study skill of plant material, sectioning, staining, mounting, and focusing, also to decide staining reagent required for specific part of plant

- CO 2:** To study morphological and microscopical character also draw microscopy in proper manner and apply theoretical and practical knowledge
- CO 3:** Conduction of extraction procedure and explain significance of use of various chemicals and physical condition
- CO 4:** Identification of unorganized drug using morphological, chemical, physical and microscopical characteristics
- CO 5:** Study of volatile oil by using analytical parameter and judge quality of volatile oils

246T Pharmaceutical Engineering

Students will able to Know

- CO 1:** To understand molecular diffusion in gases and liquids, mechanism, theory & factors affecting drying
- CO 2:** To study various heat transfer techniques and also evaporation including their mechanism, applications and instrumentation in pharmacy.
- CO 3:** Develop an understanding of pharmaceutical engineering by studying advance modules that are relevant to the changing priorities and requirements of the modern pharmaceutical industries.
- CO 4:** Learn the principle, theory, mechanism, working and construction of equipments of different unit operations. (Filtration, centrifugation, drying, heat transfer, crystallization)
- CO 5:** Study the different materials used in the pharmaceutical plant constructions, principles, mechanisms and theories of different unit operations, to illustrate fundamentals and facts about flow of fluids.