

## **Final Year B.Pharm (VIII Semester)**

### **481T Advanced Drug Delivery System**

#### **Students will able to know**

- CO 1:** To describe the fundamental concept of modified drug release and pre requisites of drug candidates, along with various approaches and classification
- CO 2:** To explain introduction, formulation, merits, demerits, application and evaluation of Novel drug delivery systems
- CO 3:** To clarify concept of Microencapsulation, its application, types of microencapsulation and evaluation of microcapsules
- CO 4:** Elucidate Basic concept of Optimization and Therapeutic Aerosol with its formulation and evaluation

### **481P Advanced Drug Delivery System**

#### **Students will able to know**

- CO 1:** Formulation development and evaluation of sustained release, transdermal, gastro retentive formulations
- CO 2:** To prepare and evaluate microsphere using Micro encapsulation techniques
- CO 3:** Optimization of dosage form using  $2^3$  factorial design

### **482T Cosmetic Science**

#### **Students will able to know**

- CO 1:** To understand the concepts of cosmetics, anatomy of skin, hair, general excipients used in cosmetics, formulation of cosmetics for skin, including manufacturing, equipments & evaluation of creams like cold cream, vanishing cream etc. & powder cosmetics.
- CO 2:** Explain formulation, manufacturing for hair, eyes & evaluation of the product like hair shampoos, tonics eye mascara, shadow also to understand formulation of manicure products like nail lacquer, remover etc.
- CO 3:** Learning the concept of cosmeceuticals, history, difference between cosmetics & cosmeceuticals & cosmeceutical agents.

## **482P Cosmetic Science**

### **Students will able to know**

- CO 1:** Perform formulation, evaluation and labeling of cosmetics like moisturizing cream, vanishing cream, shaving cream, after shave & baby products.
- CO 2:** Perform formulation, evaluation of eye cosmetics, nail lacquer & shampoo.
- CO 3:** To learn the use of ingredients in formulation, category of formulation and Prepare labels as per regulatory requirements

## **483T Pharmaceutical Analysis-VI**

### **Students will able to know**

- CO 1:** Understanding of the theory and applications of the most common basic methods of pharmaceutical analysis (NMR spectroscopy and Mass spectrometry)
- CO 2:** Application of various analytical techniques to drug analysis and control for assessing the purity of formulations by chromatographic such as HPLC
- CO 3:** To introduce the Students to modern instrumental hyphenated techniques and its application

## **483P Pharmaceutical Analysis-VI**

### **Students will able to know**

- CO 1:** Students must have Scientific knowledge and understanding of analytical method validation protocol and interpret the result of validation of current regulatory guidance USP and ICH, e.g. Q2(R1).
- CO 2:** Apply the knowledge and skills acquired to analyze and interpret experimental data obtained spectroscopic data
- CO 3:** Study of system suitability parameter according to ICH or USP guideline and different strategies for quantification techniques in HPLC

## **484T Medicinal Chemistry-IV**

### **Students will able to know**

- CO 1:** Outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of therapeutic agents.
- CO 2:** Explain the influence of the metabolic profile of drugs and their impact on biological system
- CO 3:** Explain the influence of structural features on biological activity and therapeutic uses of medicinal compounds
- CO 4:** Describe the therapeutic uses of chemotherapeutic agents, antibiotics, hormones & steroids.

#### **484P Medicinal Chemistry-IV**

##### **Students will able to know**

- CO 1:** Synthesize & understand the reaction mechanism involved in the synthesis of medicinally active compound of diverse chemical categories.
- CO 2:** Elucidate the functional groups present in synthesized drugs by IR and its purification by column chromatography
- CO 3:** Discuss the use of various equipments for high vacuum distillation, & pH based amino acid separation.

#### **485T Pharmacology-V**

##### **Students will able to know**

- CO 1:** Understand various methods of drug-drug interaction inside the body.
- CO 2:** Understand the mechanism of adverse drug reactions and pharmacovigilance.
- CO 3:** Get knowledge about recent development in pharmacology

#### **485P Pharmacology-V**

##### **Students will able to know**

- CO 1:** Understand Preclinical Pharmacological experiments using computer based program
- CO 2:** Understand Basic concepts of statistics, its application and importance.

**CO 3:** Understand the drug action on tissue preparation

#### **486T Natural Products: Commerce, Industry and Regulation**

##### **Students will able to know**

**CO 1:** Significance of natural products in daily life. Classify different segments in market, demand & supply position; export & import potential; position of Indian herbal drug industry in global contest.

**CO 2:** The market potential of natural products & explore entrepreneurship skills to grab these opportunities.

**CO 3:** Understand & explain safe use of natural products, possible toxicities & interaction, toxicities in most venerable group (elderly patients), need & significance of pharmacovigilance systems.

#### **487T Quality Assurance Techniques**

##### **Students will able to know**

**CO 1:** Elucidate the significance of quality and CGMP in pharmaceutical manufacturing

**CO 2:** Elaborate on the role of validation in assurance of quality in pharmaceutical industry

**CO 3:** Describe various aspects of documentation, SOPs and records.

**CO 4:** Explain about ICH guidelines in stability testing and QMS

**CO 5:** Explain about quality by design