

## **D.PHARMACY Allopathic (Diploma in Pharmacy)**

### **Program Outcomes**

PO1. Pharmacy knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

PO2. Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

PO3. Design/development of solutions: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

PO4. Conduct investigations of complex problems: Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

PO6. The Pharmacist and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice

PO7. Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and gain multidisciplinary knowledge through innovative projects, industrial training.

PO10. Communication: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of Pharmacy and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-access and use feedback effectively from others to identify learning needs and to satisfy these needs on an on-going basis.

#### **D. Pharmacy 1st Year:**

**Course Code : ER20-11T**

**Title of the course : PHARMACEUTICS (Theory)**

**Course Outcomes:** This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms. Upon successful completion of this course, the students will be able to

**CO1:** Describe about the different dosage forms and their formulation aspects

**CO2:** Explain the advantages, disadvantages, and quality control tests of different dosage forms

**CO3:** Discuss the importance of quality assurance and good manufacturing practices.

**Course Code : ER20-11P**

**Title of the course : PHARMACEUTICS (Practical)**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Calculate the working formula from the given master formula

**CO2:** Formulate the dosage form and dispense in an appropriate container

**CO3:** Design the label with the necessary product and patient information

**CO4:** Perform the basic quality control tests for the common dosage forms

**Course Code : ER20-12T**

**Title of the course : PHARMACEUTICAL CHEMISTRY (Theory)**

**Course Outcomes:** This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms. Upon successful completion of this course, the students will be able to

**CO1:** Describe the chemical class, structure and chemical name of the commonly used drugs and pharmaceuticals of both organic and inorganic nature

**CO2:** Discuss the pharmacological uses, dosage regimen, stability issues and storage conditions of all such chemical substances commonly used as drugs

**CO3:** Describe the quantitative and qualitative analysis, impurity testing of the chemical substances given in the official monographs

**CO4:** Identify the dosage form & the brand names of the drugs and pharmaceuticals popular in the market place.

**Course Code : ER20-12P**

**Title of the course : PHARMACEUTICAL CHEMISTRY (Practical)**

**Course Outcomes:**

Upon successful completion of this course, the students will be able to

**CO1:** Perform the limit tests for various inorganic elements and report

**CO2:** Prepare standard solutions using the principles of volumetric analysis

**CO3:** Test the purity of the selected inorganic and organic compounds against the monograph standards

**CO4:** Synthesize the selected chemical substances as per the standard synthetic scheme

**CO5:** Perform qualitative tests to systematically identify the unknown chemical substances

**Course Code : ER20-13T**

**Title of the course : PHARMACOGNOSY (Theory)**

**Course Outcomes:** In this student learns about the scope of Pharmacognosy includes the history, scope and its various other traditional system. It also includes the Occurrence, distribution, Organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs. Upon successful completion of this course, the students will be able to

**CO1:** Identify the important/common crude drugs of natural origin

**CO2:** Describe the uses of herbs in nutraceuticals and cosmeceuticals

**CO3:** Discuss the principles of alternative system of medicines

**CO4:** Describe the importance of quality control of drugs of natural origin

**Course Code** : **ER20-13P**

**Title of the course** : **PHARMACOGNOSY (Practical)**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Identify the given crude drugs based on the morphological characteristics

**CO2:** Take a transverse section of the given crude drugs

**CO3:** Describe the anatomical characteristics of the given crude drug under microscopical conditions

**CO4:** Carry out the physical and chemical tests to evaluate the given crude drugs

**Course Code** : **ER20-14T**

**Title of the course** : **HUMAN ANATOMY AND PHYSIOLOGY (Theory)**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Describe the various organ systems of the human body

**CO2:** Discuss the anatomical features of the important human organs and tissues

**CO3:** Explain the homeostatic mechanisms regulating the normal physiology in the human system

**CO4:** Discuss the significance of various vital physiological parameters of the human body.

**Course Code** : **ER20-14P**

**Title of the course** : **HUMAN ANATOMY AND PHYSIOLOGY (Practical)**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Perform the haematological tests in human subjects and interpret the results

**CO2:** Record, monitor and document the vital physiological parameters of human subjects and interpret the results

**CO3:** Describe the anatomical features of the important human tissues under the microscopical conditions

**CO4:** Discuss the significance of various anatomical and physiological characteristics of the human body

**Course Code : ER20-15T**

**Title of the course : SOCIAL PHARMACY (Theory)**

**Course Outcomes:** This course is designed to impart basic knowledge on public health, epidemiology, preventive care, and other social health related concepts. Also, to emphasize the roles of pharmacists in the public health programs. Upon successful completion of this course, the students will be able to

**CO1:** Discuss about roles of pharmacists in the various national health programs

**CO2:** Describe various sources of health hazards and disease preventive measures

**CO3:** Discuss the healthcare issues associated with food and nutritional substances

**CO4:** Describe the general roles and responsibilities of pharmacists in public health

**Course Code : ER20-15P**

**Title of the course : SOCIAL PHARMACY (Practical)**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Describe the roles and responsibilities of pharmacists in various National health programs

**CO2:** Design promotional materials for public health awareness

**CO3:** Describe various health hazards including microbial sources

**CO4:** Advice on preventive measures for various diseases

**CO5:** Provide first aid for various emergency conditions

**D. Pharmacy 2nd Year:**

## **PHARMACOLOGY – THEORY**

**Course Code: ER20-21T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1:** Describe the basic concepts of pharmacokinetics and pharmacodynamics

**CO2:** Enlist the various classes and drugs of choices for any given disease condition

**CO3.** Advise the dosage regimen, route of administration and contraindications for a given drug

**CO4.** Describe the common adverse drug reactions

## **PHARMACOLOGY – PRACTICAL**

**Course Code: ER20-21P**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Study and report the local anaesthetic, mydriatic and mitotic effects of the given drug on the rabbit eye

**CO2.** Choose appropriate animal experiment model to study the effects of the given drugs acting on the central nervous system and submit the report

**CO3.** Perform the effects of given tissues (simulated) on isolated organs / tissues and interpret the results

**CO4.** Interpret the dose dependent responses of drugs in various animal experiment models

## **COMMUNITY PHARMACY AND MANAGEMENT – THEORY**

**Course Code: ER20-22T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Describe the establishment, legal requirements, and effective administration of a community pharmacy

**CO2.** Professionally handle prescriptions and dispense medications

**CO3.** Counsel patients about the disease, prescription and or non-prescription medicines

**CO4.** Perform basic health screening on patients and interpret the reports in the community pharmacy settings

## **COMMUNITY PHARMACY AND MANAGEMENT – PRACTICAL**

**Course Code: ER20-22P**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

- CO1.** Handle and fill prescriptions in a professional manner
- CO2.** Counsel patients on various diseases and minor ailments
- CO3.** Counsel patients on prescription and or non-prescription medicines
- CO4.** Design and prepare patient information leaflets
- CO5.** Perform basic health screening tests

## **BIOCHEMISTRY & CLINICAL PATHOLOGY – THEORY**

**Course Code: ER20-23T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

- CO1.** Describe the functions of biomolecules
- CO2.** Discuss the various functions of enzymes in the human system
- CO3.** Explain the metabolic pathways of biomolecules in both physiological and pathological conditions
- CO4.** Describe the principles of organ function tests and their clinical significances
- CO5.** Determine the biomolecules / metabolites in the given biological samples, both qualitatively and quantitatively
- CO6.** Describe the clinical pathology of blood and urine

## **BIOCHEMISTRY & CLINICAL PATHOLOGY – PRACTICAL**

**Course Code: ER20-23P**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

- CO1.** Qualitatively determine the biomolecules / metabolites in the given biological samples
- CO2.** Determine the normal and abnormal constituents in blood and urine samples and interpret the results of such testing

## **PHARMACOTHERAPEUTICS - THEORY**

**Course Code: ER20-24T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Help assessing the subjective and objective parameters of patients in common disease conditions

**CO2.** Assist other healthcare providers to analyze drug related problems and provide therapeutic interventions

**CO3.** Participate in planning the rational medicine therapy for common diseases

**CO4.** Design and deliver discharge counseling for patients

## **PHARMACOTHERAPEUTICS – PRACTICAL**

**Course Code: ER20-24P**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Write SOAP (Subjective, Objective, Assessment and Plan) notes for the given clinical cases of selected common diseases

**CO2.** Counsel the patients about the disease conditions, uses of drugs, methods of handling and administration of drugs, life-style modifications, and monitoring parameters.

## **HOSPITAL AND CLINICAL PHARMACY – THEORY**

**Course Code: ER20-25T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Explain about the basic concepts of hospital pharmacy administration

**CO2.** Manage the supply chain and distribution of medicines within the hospital settings

**CO3.** Assist the other healthcare providers in monitoring drug therapy and address drug related problems

**CO4.** Interpret common lab investigation reports for optimizing drug therapy

## **HOSPITAL AND CLINICAL PHARMACY – PRACTICAL**



**Course Code: ER20-25P**

**Course Outcomes:** Upon completion of the course, the students will be able to

**CO1.** Professionally handle and answer the drug information queries

**CO2.** Interpret the common laboratory reports

**CO3.** Report suspected adverse drug reactions using standard procedures

**CO4.** Understand the uses and methods of handling various medical/surgical aids and devices

**CO5.** Interpret and report the drug-drug interactions in common diseases for optimizing the drug therapy

**PHARMACY LAW AND ETHICS – THEORY**

**Course Code: ER20-26T**

**Course Outcomes:** Upon successful completion of this course, the students will be able to

**CO1.** Describe the history and evolution of pharmacy law in India

**CO2.** Interpret the act and rules regulating the profession and practice of pharmacy in India

**CO3.** Discuss the various codes of ethics related to practice standards in pharmacy

**CO4.** Interpret the fundamentals of patent laws from the perspectives of pharmacy