

## Course outcomes

### B. Pharmacy

#### Semester I

##### 1. BP101T. HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)

Upon completion of this course the student should be able to explain the gross morphology, structure and functions of various organs of the human body. Describe the various homeostatic mechanisms and their imbalances. Identify the various tissues and organs of different systems of human body. Perform the various experiments related to special senses and nervous system and Appreciate coordinated working pattern of different organs of each system.

##### 2. BP107P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

Practical physiology is complimentary to the theoretical discussions in Physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

##### 3. BP102T. PHARMACEUTICAL ANALYSIS (Theory)

Upon completion of the course student shall be able to understand the principles of volumetric and electro chemical analysis carryout various volumetric and electrochemical titrations develop analytical skills

##### 4. BP108P. PHARMACEUTICAL ANALYSIS (Practical)

Pharmaceutical analysis is a branch of practical chemistry that involves a series of process for identification, determination, quantification and purification of a substance, separation of the components of a solution or mixture, or determination of structure of chemical compounds.

##### 5. BP103T. PHARMACEUTICS- I (Theory)

Upon completion of this course the student should be able to

- Know the history of profession of pharmacy Understand the basics of different dosage forms, pharmaceutical incompatibilities and Pharmaceutical calculations
- Understand the professional way of handling the prescription Preparation of various conventional dosage forms

##### 6. BP109P. PHARMACEUTICS-I (Practical)

Understand formulation and evaluation of Pharmaceutical solution

Understand formulation and evaluation of Pharmaceutical dispersed system  
Understand formulation and evaluation of pharmaceutical powders  
Understand formulation and evaluation of semisolid dosage form

#### **7. BP104T. PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)**

Upon completion of course student shall be able to

- know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
- understand the medicinal and pharmaceutical importance of inorganic compounds

#### **8. BP110P. PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)**

Develop skills to perform limit test for given sample  
Perform identification inorganic salts through various qualitative tests  
Ability to perform tests for purity for different compounds as per IP  
Knowledge and skills to prepare inorganic salts –boric acid, potash alum and ferrous sulphate

#### **9. BP105T.COMMUNICATION SKILLS (Theory)**

Upon completion of the course the student shall be able to

1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. Communicate effectively (Verbal and Non Verbal)
3. Effectively manage the team as a team player
4. Develop interview skills
5. Develop Leadership qualities and essentials

#### **10. BP111P.COMMUNICATION SKILLS (Practical)**

Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives.

#### **11. BP 106RBT.REMEDIAL BIOLOGY (Theory)**

Upon completion of the course, the student shall be able to

- know the classification and salient features of five kingdoms of life
- understand the basic components of anatomy & physiology of plant
- know understand the basic components of anatomy & physiology animal with special reference to human

#### **12. BP112RBP.REMEDIAL BIOLOGY (Practical)**

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

Describe levels of organization and related functions in plants and animals.  
Identify their characteristics Determine different diagnostic procedures.

### **13. BP 106RMT.REMEDIAL MATHEMATICS (Theory)**

Upon completion of the course the student shall be able to:

1. Know the theory and their application in Pharmacy
2. Solve the different types of problems by applying theory
3. Appreciate the important application of mathematics in Pharmacy

## **Semester II**

### 1. BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)

Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc. and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

### 2. BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

Practical physiology is complimentary to the theoretical discussions in physiology. Practical allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

### 3. BP202T. PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)

Upon completion of the course the student shall be able to

1. Write the structure, name and the type of isomerism of the organic compound
2. Write the reaction, name the reaction and orientation of reactions
3. Account for reactivity/stability of compounds,
4. identify/confirm the identification of organic compound

### 4. BP208P. PHARMACEUTICAL ORGANIC CHEMISTRY -I (Practical)

Knowledge of safety measures in organic chemistry laboratory and various laboratory techniques. Understanding of steps involved in identification of unknown organic compound

5. BP203 T. BIOCHEMISTRY (Theory)

Upon completion of course student shall be able to

1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.
3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

6. BP 209 P. BIOCHEMISTRY (Practical)

Learn quantitative analysis test of carbohydrates, amino acids and proteins

Understand qualitative analysis of urine for normal constituents. Study principle and procedure for determination of serum total cholesterol, blood sugar and blood creatinine

1. BP 204T.PATHOPHYSIOLOGY (THEORY)

Upon completion of the subject student shall be able to –

1. Describe the etiology and pathogenesis of the selected disease states;
2. Name the signs and symptoms of the diseases; and
3. Mention the complications of the diseases.

2. BP205 T. COMPUTER APPLICATIONS IN PHARMACY (Theory)

Upon completion of the course the student shall be able to

1. Know the various types of application of computers in pharmacy
2. Know the various types of databases
3. know the various applications of databases in pharmacy

3. BP210P. COMPUTER APPLICATIONS IN PHARMACY (Practical)

Usage of computers in the retail pharmacy.

Computer aided design of drugs (CADD)

Use of Computers in Hospital Pharmacy.

Data storage and retrieval.

Information system in Pharmaceutical Industry.

Diagnostic laboratories.

Computer aided learning.

Clinical trial management

4. BP 206 T. ENVIRONMENTAL SCIENCES (Theory)

Upon completion of the course the student shall be able to:

1. Create the awareness about environmental problems among learners.
2. Impart basic knowledge about the environment and its allied problems.
3. Develop an attitude of concern for the environment.
4. Motivate learner to participate in environment protection and environment improvement.
5. Acquire skills to help the concerned individuals in identifying and solving environmental problems.
6. Strive to attain harmony with Nature.

### **SEMESTER III**

1. BP301T. PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory)

Upon completion of the course the student shall be able to

1. Write the structure, name and the type of isomerism of the organic compound
2. Write the reaction, name the reaction and orientation of reactions
3. Account for reactivity/stability of compounds,
4. Prepare organic compounds

2. BP305P. PHARMACEUTICAL ORGANIC CHEMISTRY -II (Practical)

Knowledge of safety measures in organic chemistry laboratory and various laboratory techniques. Understanding of steps involved in identification of unknown organic compound

3. BP302T. PHYSICAL PHARMACEUTICS-I (Theory)

Upon the completion of the course student shall be able to

1. Understand various physicochemical properties of drug molecules in the designing the dosage forms
2. Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.

4. BP306P. PHYSICAL PHARMACEUTICS – I (Practical)

Apply the knowledge of phase diagram to determine consolute temperatures  
Understand the concept of solubility and recognize basic rules and equations regarding physical principles  
Apply the knowledge of complexation and adsorption isotherms

5. BP 303 T. PHARMACEUTICAL MICROBIOLOGY (Theory)

Upon completion of the subject student shall be able to;

1. Understand methods of identification, cultivation and preservation of various microorganisms
  2. To understand the importance and implementation of sterilization in pharmaceutical processing and industry
  3. Learn sterility testing of pharmaceutical products.
  4. Carried out microbiological standardization of Pharmaceuticals.
  5. Understand the cell culture technology and its applications in pharmaceutical industries.
6. BP 307P.PHARMACEUTICAL MICROBIOLOGY (Practical)  
Upon successful completion of this course one can be able to
1. Identify microorganisms of relevance to healthcare and the pharmaceutical industry and their sources.
  2. Discuss Microbial contamination/product spoilage and antimicrobial preservation of pharmaceutical formulations during production and in products
  3. Understand various disinfection and sterilization techniques ,evaluate the sterility testing, microbial assays, pharmacopoeial standards of sterilization process
  4. Discuss Microbial contamination , product spoilage and antimicrobial preservation of Cosmetic products
  5. Evaluate microbial content testing and sterility testing
7. BP 304 T. PHARMACEUTICAL ENGINEERING (Theory)
- Upon completion of the course student shall be able:
1. To know various unit operations used in Pharmaceutical industries.
  2. To understand the material handling techniques.
  3. To perform various processes involved in pharmaceutical manufacturing process.
  4. To carry out various test to prevent environmental pollution.
  5. To appreciate and comprehend significance of plant lay out design for optimum use of resources.
  6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.
8. BP308P - PHARMACEUTICAL ENGINEERING (Practical)  
To know various unit operations used in Pharmaceutical industries.
- To understand the material handling techniques.
  - To perform various processes involved in pharmaceutical manufacturing process.
  - To carry out various test to prevent environmental pollution.
  - To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.

## SEMESTER IV

### 1. BP401T. PHARMACEUTICAL ORGANIC CHEMISTRY –III (Theory)

At the end of the course, the student shall be able to

1. Understand the methods of preparation and properties of organic compounds
2. Explain the stereo chemical aspects of organic compounds and stereo chemical reactions
3. Know the medicinal uses and other applications of organic compounds

### 2. BP402T. MEDICINAL CHEMISTRY – I (Theory)

Upon completion of the course the student shall be able to

1. Understand the chemistry of drugs with respect to their pharmacological activity
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. Know the Structural Activity Relationship (SAR) of different class of drugs
4. Write the chemical synthesis of some drugs

### 3. BP406P. MEDICINAL CHEMISTRY – I (Practical)

Learn synthesis of medicinally important compounds /

drug intermediates with Recrystallization and TLC techniques.

Understand Purification methods for synthesized compounds using Column chromatography

Study of Partition coefficient of drugs

### 4. BP 403 T. PHYSICAL PHARMACEUTICS-II (Theory)

Upon the completion of the course student shall be able to

1. Understand various physicochemical properties of drug molecules in the designing the dosage forms
2. Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.

### 5. BP 407P. PHYSICAL PHARMACEUTICS- II (Practical)

Apply the knowledge of phase diagram to determine consolute temperatures

Understand the concept of solubility and recognize basic rules and equations regarding physical principles, **apply** the knowledge of complexation and adsorption isotherms

### 6. BP 404 T. PHARMACOLOGY-I (Theory)

Upon completion of this course the student should be able to

1. Understand the pharmacological actions of different categories of drugs

2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
  3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
  4. Observe the effect of drugs on animals by simulated experiments
  5. Appreciate correlation of pharmacology with other bio medical sciences
7. BP 408 P.PHARMACOLOGY-I (Practical)  
They would be trained with isolation of different organs/tissues from the laboratory animals by simulated experiments, They would have observed the various receptor actions using isolated tissue preparation , Students would appreciate the correlation of pharmacology with related medical sciences , They would have understood the cell communication mechanism,They would appreciate the newer targets of several disease conditions for treatment.
8. BP 405 T.PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)  
  
Upon completion of the course, the student shall be able
1. To know the techniques in the cultivation and production of crude drugs
  2. To know the crude drugs, their uses and chemical nature
  3. Know the evaluation techniques for the herbal drugs
  4. To carry out the microscopic and morphological evaluation of crude drugs
9. BP408 P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical)  
At the end of the course student will be able to: 1. Identify and isolate and characterize the active constituents against advanced diseases from plants. 2. Practice principles of Ayurveda and utilize in herbal medicine. 3. Apply pharmacovigilance in herbal therapy and establish authentic standards.

## **SEMESTER V**

1. BP501T. MEDICINAL CHEMISTRY – II (Theory)

Upon completion of the course the student shall be able to

1. Understand the chemistry of drugs with respect to their pharmacological activity
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. Know the Structural Activity Relationship of different class of drugs
4. Study the chemical synthesis of selected drugs

2. BP 502 T. Industrial PharmacyI (Theory)

Upon completion of the course the student shall be able to

1. Know the various pharmaceutical dosage forms and their manufacturing techniques.
2. Know various considerations in development of pharmaceutical dosage forms



3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality

3. BP 506 P. Industrial Pharmacy I (Practical)

Able to perform preformulation studies of tablets and capsule

Understand the knowledge to formulate, evaluate and label of tablets and capsules

Prepare labels to suit regulatory requirements.

Able to conduct the survey and report its finding

4. BP503.T. PHARMACOLOGY-II (Theory)

Upon completion of this course the student should be able to

1. Understand the mechanism of drug action and its relevance in the treatment of different diseases

2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments

3. Demonstrate the various receptor actions using isolated tissue preparation

4. Appreciate correlation of pharmacology with related medical sciences

5. BP 507 P. PHARMACOLOGY-II (Practical)

They would be trained with isolation of different organs/tissues from the laboratory animals by simulated experiments, They would have observed the various receptor actions using isolated tissue preparation, Students would appreciate the correlation of pharmacology with related medical sciences, They would have understood the cell communication mechanism, They would appreciate the newer targets of several disease conditions for treatment.

6. BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)

Upon completion of the course, the student shall be able

1. To know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents

2. To understand the preparation and development of herbal formulation.

3. To understand the herbal drug interactions

4. To carry out isolation and identification of phytoconstituents

7. BP 508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)

the active constituents against advanced diseases from plants. 2. Practice principles of Ayurveda and utilize in herbal medicine. 3. Apply pharmacovigilance in herbal therapy and establish authentic standards.

8. BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)

Upon completion of the course, the student shall be able to understand:

1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
2. Various Indian pharmaceutical Acts and Laws
3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
4. The code of ethics during the pharmaceutical practice

## **SEMESTER-VI**

### 1. BP601T. MEDICINAL CHEMISTRY – III (Theory)

Upon completion of the course student shall be able to

1. Understand the importance of drug design and different techniques of drug design.
2. Understand the chemistry of drugs with respect to their biological activity.
3. Know the metabolism, adverse effects and therapeutic value of drugs.
4. Know the importance of SAR of drugs.

### 2. BP607P. MEDICINAL CHEMISTRY- III (Practical)

Learn synthesis of medicinally important compounds /

drug intermediates with Recrystallization and TLC techniques.

Understand Purification methods for synthesized compounds using Column chromatography

Study of Partition coefficient of drugs

### 3. BP602 T. PHARMACOLOGY-III (Theory)

Upon completion of this course the student should be able to:

1. Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
2. Comprehend the principles of toxicology and treatment of various poisonings and
3. Appreciate correlation of pharmacology with related medical sciences.

### 4. BP 608 P. PHARMACOLOGY-III (Practical)

They would be trained with isolation of different organs/tissues from the laboratory animals by simulated experiments, They would have observed the various receptor actions using isolated tissue preparation ,

### 5. BP 603 T. HERBAL DRUGTECHNOLOGY(Theory)

Upon completion of this course the student should be able to:

1. Understand raw material as source of herbal drugs from cultivation to herbal drug product
2. Know the WHO and ICH guidelines for evaluation of herbal drugs
3. Know the herbal cosmetics, natural sweeteners, and nutraceuticals
4. Appreciate patenting of herbal drugs, GMP.

6. BP 609 P. HERBAL DRUG TECHNOLOGY (Practical)  
They would be trained with isolation of different organs/tissues from the laboratory animals by simulated experiments; They would have observed the various receptor actions using isolated tissue preparation,
7. BP 604 T. BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory)

Upon completion of the course student shall be able to:

1. Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance.
2. Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
3. To understand the concepts of bioavailability and bioequivalence of drug products and their significance.
4. Understand various pharmacokinetic parameters, their significance & applications.

8. BP 605 T. PHARMACEUTICAL BIOTECHNOLOGY (Theory)

Upon completion of the subject student shall be able to;

1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
2. Genetic engineering applications in relation to production of pharmaceuticals
3. Importance of Monoclonal antibodies in Industries
4. Appreciate the use of microorganisms in fermentation technology

9. BP606TPHARMACEUTICAL QUALITY ASSURANCE (Theory)

Upon completion of the course student shall be able to:

- understand the cGMP aspects in a pharmaceutical industry
- appreciate the importance of documentation
- understand the scope of quality certifications applicable to pharmaceutical industries
- understand the responsibilities of QA & QC departments

## **SEMESTER VII**

1. BP701T. INSTRUMENTAL METHODS OF ANALYSIS (Theory)

Upon completion of the course the student shall be able to

1. Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis
2. Understand the chromatographic separation and analysis of drugs.
3. Perform quantitative & qualitative analysis of drugs using various analytical instruments.

2. BP705P. INSTRUMENTAL METHODS OF ANALYSIS (Practical)

To learn appropriate safety measures while handling sophisticated instruments.  
Understanding validation of analytical methods as per as per USP or ICH guidelines using sophisticated instrument.

Understanding system suitability parameters as per IP/BP/USP protocol for various HPLC methods.

To study concept of structure elucidation using various analytical instruments as UV, IR, NMR, MS spectrophotometer.

3. BP 702 T. INDUSTRIAL PHARMACYII (Theory)

Upon completion of the course, the student shall be able to:

1. Know the process of pilot plant and scale up of pharmaceutical dosage forms
2. Understand the process of technology transfer from lab scale to commercial batch
3. Know different Laws and Acts that regulate pharmaceutical industry
4. Understand the approval process and regulatory requirements for drug products

4. BP 703T. PHARMACY PRACTICE (Theory)

Upon completion of the course, the student shall be able to

1. Know various drug distribution methods in a hospital
2. Appreciate the pharmacy stores management and inventory control
3. Monitor drug therapy of patient through medication chart review and clinical review
4. Obtain medication history interview and counsel the patients
5. Identify drug related problems
6. Detect and assess adverse drug reactions
7. Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states
8. Know pharmaceutical care services
9. Do patient counseling in community pharmacy;
10. Appreciate the concept of rational drug therapy.

5. BP 704T: NOVEL DRUG DELIVERY SYSTEMS (Theory)

Upon completion of the course student shall be able

1. To understand various approaches for development of novel drug delivery systems.
2. To understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation

## **SEMESTER VIII**

### 1. BP801T. BIOSTATISTICS AND RESEARCH METHODOLOGY (Theory)

Upon completion of the course the student shall be able to

- Know the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of Experiment)
- Know the various statistical techniques to solve statistical problems
- Appreciate statistical techniques in solving the problems.

### 2. BP 802T SOCIAL AND PREVENTIVE PHARMACY (Theory)

After the successful completion of this course, the student shall be able to:

- Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide.
- Have a critical way of thinking based on current healthcare development.
- Evaluate alternative ways of solving problems related to health and pharmaceutical issues

### 3. BP803ET. PHARMA MARKETING MANAGEMENT (Elective subject-Theory)

The course aims to provide an understanding of marketing concepts and techniques and their applications in the pharmaceutical industry.

### 4. BP804 ET: PHARMACEUTICAL REGULATORY SCIENCE (Elective subject-Theory)

Upon completion of the subject student shall be able to;

1. Know about the process of drug discovery and development
2. Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
3. Know the regulatory approval process and their registration in Indian and international markets

### 5. BP 805T: PHARMACOVIGILANCE (Elective subject-Theory)

At completion of this paper it is expected that students will be able to (know, do, and appreciate):

1. Why drug safety monitoring is important?
2. History and development of pharmacovigilance
3. National and international scenario of pharmacovigilance
4. Dictionaries, coding and terminologies used in pharmacovigilance
5. Detection of new adverse drug reactions and their assessment
6. International standards for classification of diseases and drugs
7. Adverse drug reaction reporting systems and communication in pharmacovigilance

8. Methods to generate safety data during pre clinical, clinical and post approval phases of drugs' life cycle
9. Drug safety evaluation in paediatrics, geriatrics, pregnancy and lactation
10. Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India
11. ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning
12. CIOMS requirements for ADR reporting
13. Writing case narratives of adverse events and their quality.

6. BP 806 ET. QUALITY CONTROL AND STANDARDIZATION OF HERBALS (Elective subject-Theory)

Upon completion of the subject student shall be able to;

1. Know WHO guidelines for quality control of herbal drugs
2. Know Quality assurance in herbal drug industry
3. Know the regulatory approval process and their registration in Indian and international markets
4. Appreciate EU and ICH guidelines for quality control of herbal drugs

7. BP 807 ET. COMPUTER AIDED DRUG DESIGN (Elective subject-Theory)

Upon completion of the course, the student shall be able to understand

- Design and discovery of lead molecules
- The role of drug design in drug discovery process
- The concept of QSAR and docking
- Various strategies to develop new drug like molecules.
- The design of new drug molecules using molecular modeling software

8. BP808ET: CELL AND MOLECULAR BIOLOGY (Elective subject-Theory)

Upon completion of the subject student shall be able to;

- Summarize cell and molecular biology history.
- Summarize cellular functioning and composition.
- Describe the chemical foundations of cell biology.
- Summarize the DNA properties of cell biology.
- Describe protein structure and function.
- Describe cellular membrane structure and function.
- Describe basic molecular genetic mechanisms.
- Summarize the Cell Cycle

9. BP809ET. COSMETIC SCIENCE(Elective subject-Theory)

10. BP810 ET. PHARMACOLOGICAL SCREENING METHODS(Elective subject-Theory)

Upon completion of the course the student shall be able to,

- Appreciate the applications of various commonly used laboratory animals.

- Appreciate and demonstrate the various screening methods used in preclinical research
  - Appreciate and demonstrate the importance of biostatistics and research methodology
- Design and execute a research hypothesis independently

11. BP 811 ET. ADVANCED INSTRUMENTATION TECHNIQUES(Elective subject-Theory)

Upon completion of the course the student shall be able to

- understand the advanced instruments used and its applications in drug analysis
- understand the chromatographic separation and analysis of drugs.
- understand the calibration of various analytical instruments
- know analysis of drugs using various analytical instruments.

12. BP 812 ET. DIETARY SUPPLEMENTS AND NUTRACEUTICALS(Elective subject-Theory)

This module aims to provide an understanding of the concepts behind the theoretical applications of dietary supplements. By the end of the course, students should be able to:

1. Understand the need of supplements by the different group of people to maintain healthy life.
2. Understand the outcome of deficiencies in dietary supplements.
3. Appreciate the components in dietary supplements and the application.
4. Appreciate the regulatory and commercial aspects of dietary supplements including health claims.

13. BP813ET. Pharmaceutical Product Development(Elective subject-Theory)

14. BP814PW. Project work

-----