ACHARYA & BM REDDY COLLEGE OF PHARMACY

Bengaluru-560107

Course outcomes

Bachelor of Pharmacy

Department	ACP	Semester	1	Course Code	BP101T	Course ID	C101
Course Title		**Human Anatomy And Physiology I**					
Course outcome No.		**Course Outcome Statements**					
C101.1		Explain general terminology, cell structure, function; interrelationships among molecular, cellular, tissue and organ functions in each system					
C101.2		Describe the correlation of the body system with each other and their contributions towards homeostasis					
C101.3		Identify different axial and appendicular bones of the human skeleton					
C101.4		Apply concepts and knowledge of gross anatomy and physiology related to lymph, skin, skeletal muscles and nervous system					
C101.5		Recognize the major organs and vessels of the cardiovascular system, hematopoietic system and their functions					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP102T**	**Course ID**	**C102**
Course title		**Pharmaceutical analysis I**					
Course outcome No.		**Course outcome statements**					
C102.1		Describe the various analytical techniques and fundamentals of volumetric analysis					
C102.2		Describe the preparation and standardization of sodium hydroxide, sulphuric acid, sodium thiosulfate, potassium permanganate and ceric ammonium sulphate					
C102.3		Perform different types of titrations including acid-base titrations, non-aqueous titrations, redox titrations, precipitation titrations, complexometric titrations and gravimetric analysis					
C102.4		Explain the basic principles underlying electro-analytical techniques					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP103T**	**Course ID**	**C103**
Course title		**Pharmaceutics I**					
Course outcome No.		**Course outcome statements**					
C103.1		Discuss about the pharmacy profession, pharmacopoeias, prescription, posology, pharmaceutical calculations					
C103.2		Describe the formulation aspects of powders, monophasic and biphasic liquid dosage forms					
C103.3		Explain the types of incompatibilities in pharmaceutical formulations					
C103.4		Describe the formulation aspects of suppositories and other semisolid dosage forms like ointments, gels, creams and paste					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP104T**	**Course ID**	**C104**
Course Title		**Pharmaceutical Inorganic Chemistry**					
Course Outcome No.		**Course Outcome Statements**					
C104.1		Explain the role of various impurities in pharmaceuticals and their detection					
C104.2		Describe the theoretical aspects of acids, bases and buffers					

C104.3		Summarize the principle, properties, measurement, and applications of radiopharmaceuticals					
C104.4		Describe the method of preparation, storage, assay and uses of certain inorganic pharmaceuticals					
Department	**ACP**	**Semester**	**1**	**Course Code**	**Bp107p**	**Course ID**	**C107**
Course Title		**Human Anatomy and Physiology - Practical**					
Course Outcome No.		**Course Outcome Statements**					
C107.1		Describe the distinguishing features of each of the four types of tissue					
C107.2		Locate and identify anatomical structures					
C107.3		Demonstrate competency in blood parameters- recording observations, and analyzing data					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP108P**	**Course ID**	**C108**
Course Title		**Pharmaceutical Analysis- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C108.1		Carry out the preparation and standardization of various molar and normal solutions					
C108.2		Perform various types of titrations such as precipitation, complexometry, redox titrations including cerimetry, iodimetry, iodometry, bromatometry, dichrometry and gravimetric analysis					
C108.3		Determine the analyte by electro-analytical methods such as conductometry and potentiometry					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP109P**	**Course ID**	**C109**
Course Title		**Pharmaceutics I- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C109.1		Outline the history of the profession of pharmacy; the development of the IP and introduction about BP, USP and Extra pharmacopoeia, various dosage forms, parts and procedure for handling the prescription					
C109.2		Interpret the calculations, such as powders, monophasic, biphasic liquids and semisolids					
C109.3		Formulate pharmaceutical preparations such as powders, monophasic liquids, biphasic liquids and different types of semisolid dosage forms such as suppositories, ointments, pastes, creams and gels					
Department	**ACP**	**Semester**	**1**	**Course Code**	**BP110P**	**Course ID**	**C110**
Course Title		**Pharmaceutical Inorganic Chemistry- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C110.1		Identify small quantities of impurity present in the sample and compare with the standard					
C110.2		Relate purity of inorganic pharmaceuticals by performing tests for purity and identification test					
C110.3		Recognize appropriate methods and procedures to prepare certain inorganic Pharmaceuticals					
Department	**ACP**	**Semester**	**2**	**Course Code**	**BP201T**	**Course ID**	**C201**
Course Title		**Human Anatomy and Physiology-II**					

Course Outcome No.	Course Outcome Statements
C201.1	Demonstrate competency in identifying the major structure and function of gross anatomy of Central Nervous System
C201.2	Discuss in depth the anatomy and physiology of the digestive, respiratory and urinary system from a regional perspective
C201.3	Describe briefly basic components and functions of endocrine and reproductive Systems
C201.4	Demonstrate and understanding of the chromosomal and molecular basis of inheritance and gene expression
C201.5	Understand in detail about energy and metabolism

Department	ACP	Semester	2	Course Code	BP202T	Course ID	C202
Course Title		Pharmaceutical Organic Chemistry-I					

Course Outcome No.	Course Outcome Statements
C202.1	Describe the IUPAC nomenclature for simple organic compounds
C202.2	Explain hybridization of *s* and *p* orbitals in alkanes, alkenes and impact of nucleophiles and electrophiles in the reactivity of alkenes, alkyl halides and carbonyl compound
C202.3	Outline the chemical test for functional group identification and list structure and uses of certain alkyl halide, alcohol, carboxylic acid and amine derivatives
C202.4	Apply the principles of reaction mechanism in synthesis of organic compound Discuss about key factors that affect acidity and basicity of carboxylic acid and Amines

Department	ACP	Semester	2	Course Code	BP203T	Course ID	C203
Course Title		Biochemistry					

Course Outcome No.	Course Outcome Statements
C203.1	Elucidate the anabolic and catabolic pathways of carbohydrate molecules
C203.2	Elucidate the anabolic and catabolic pathways of amino acid molecules
C203.3	Elucidate the anabolic and catabolic pathways of lipid molecules
C203.4	Restate the importance of nucleic acids metabolism
C203.5	Describe the central dogma of life
C203.6	Explain Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins
C203.7	Discuss the flow of energy from biomolecules within organism
C203.8	Interpret the mechanism of enzymes', enzyme kinetics, regulation and their applications

Department	ACP	Semester	2	Course Code	BP204T	Course ID	C204
Course Title		Pathophysiology					

Course Outcome No.	Course Outcome Statements
C204.1	Understand the basic principles of cell injury & adaptation, Inflammation Process & repair that leads to pathophysiological mechanism in the body
C204.2	Relate the Pathophysiology, signs, symptoms and Diagnostic test to diagnose diseases/disorders related to Cardiovascular system, Respiratory system, Renal System, Haematological system

C204.3		Relate Pathophysiology, signs, symptoms and Diagnostic test to diagnose diseases/disorders of Endocrine system, Nervous system, Gastrointestinal system, Bones & Joints and Cancer					
C204.4		Understand the knowledge of causative organism, Mode of transmission, Pathophysiology, Clinical features of infectious diseases & Sexually transmitted diseases to practice medicine safely, effectively and rationally					
Department	**ACP**	**Semester**	**2**	**Course Code**	**BP206T**	**Course ID**	**C206**
Course Title		**Environmental Sciences**					
Course Outcome No.		**Course Outcome Statements**					
C206.1		Discuss the concepts, scope and importance of environmental science, the natural resources their exploitation, and the associated problems					
C206.2		Identify the structure and functions of forest, land, desert, grass land and aquatic eco system					
C206.3		Acquire the knowledge of different biodiversity and its conservation					
C206.4		Categorize the causes and effects and the control measures about pollution of air, water, soil, marine, noise, thermal and nuclear pollution					
Department	**ACP**	**Semester**	**2**	**Course Code**	**BP207P**	**Course ID**	**C207**
Course Title		**Human Anatomy And Physiology-II- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C207.1		Recognize the anatomical structures and discuss the physiological functions of various systems					
C207.2		Assess the special senses like olfactory, gustation and eye sight					
C207.3		Perform experiments on neurological reflexes, vital capacity, body mass index and body temperature					
C207.4		Evaluate blood cells quantitatively					
Department	**ACP**	**Semester**	**2**	**Course Code**	**BP208P**	**Course ID**	**C208**
Course Title		**Pharmaceutical Organic Chemistry-I- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C208.1		Perform the chemical test for the identification of functional groups in organic compounds					
C208.2		Determine boiling point and melting point of organic compounds					
C208.3		Apply appropriate synthetic methodology to prepare certain organic compounds					
C208.4		Construct simple organic compound using molecular model kit					
Department	**ACP**	**Semester**	**2**	**Course Code**	**BP209P**	**Course ID**	**C209**
Course Title		**Biochemistry- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C209.1		Estimate the qualitative & quantitative analysis of carbohydrates, proteins and cholesterol present in the given sample					

C209.2		Investigate the abnormal constituents present in the given sample of urine and enzyme activity and effect of temperature					
C209.3		Investigate the normal constituents present in the given sample of urine and enzyme activity and effect of substrate concentration on it					
Department	**ACP**	**Semester**	**3**	**Course Code**	**BP301T**	**Course ID**	**C301**
Course Title		**Pharmaceutical Organic Chemistry Ii**					
Course Outcome No.		**Course Outcome Statements**					
C301.1		Describe electrophilic aromatic substitution reactions					
C301.2		Explain the chemical properties and uses of organic compounds					
C301.3		Elaborate the properties of fats and oils					
C301.4		Account for reactivity/stability of compounds					
Department	**ACP**	**Semester**	**3**	**Course Code**	**BP302T**	**Course ID**	**C302**
Course Title		**Physical Pharmaceutics- I**					
Course Outcome No.		**Course Outcome Statements**					
C302.1		Discuss the concept of physicochemical properties of drugs pertaining to the development of pharmaceutical formulations					
C302.2		Describe about principle and concepts of surface and interfacial phenomena					
C302.3		Analyze the complexation mechanism to improve formulation characteristics					
C302.4		Explain the mechanism of action of buffers, different methods used for the determination of pH and isotonicity					
Department	**ACP**	**Semester**	**3**	**Course Code**	**BP303T**	**Course ID**	**C303**
Course Title		**Pharmaceutical Microbiology**					
Course Outcome No.		**Course Outcome Statements**					
C303.1		Describe bacteria, bacterial cell biology, and microscopy techniques					
C303.2		Summarize the different types of staining & biochemical tests for bacteria					
C303.3		Select the appropriate sterilization methods & study the tool design for pharmaceutical use					
C303.4		Discuss the morphology, classification, reproduction/replication and cultivation of Fungi and Viruses					
C303.5		Associate the roles and importance of disinfectants and antiseptics in pharmaceutical industry					
C303.6		Explain the standardization and microbial assay of various pharmaceutical products					
C303.7		Assimilate the microbial contamination, spoilage of pharmaceutical formulations during production and in products					
C303.8		Interpret the role of cell culture in pharmaceutical industry & research					
Department	**ACP**	**Semester**	**3**	**Course Code**	**BP304T**	**Course ID**	**C304**
Course Title		**Pharmaceutical Engineering**					

Course Outcome NO	Course Outcome Statements
C304.1	Identify the suitable equipment and materials required for particular unit operation on the basis of advantages and disadvantages
C304.2	Explain the various principle and mechanism involved in different pharmaceutical unit operations
C304.3	Perform various processes involved in pharmaceutical manufacturing process
C304.4	Discuss the various preventive methods used for corrosion control in pharmaceutical Industries

Department	ACP	Semester	3	Course Code	BP305P	Course ID	C305
Course Title		Pharmaceutical Organic Chemistry Ii- Practical					

Course Outcome NO	Course Outcome Statements
C305.1	Analyze the chemistry of fats and oils
C305.2	Prepare small organic molecules in lab scale
C305.3	Steam distill and recrystallize small organic molecules

Department	ACP	Semester	3	Course Code	BP306P	Course ID	C306
Course Title		Physical Pharmaceutics I- Practical					

Course Outcome NO	Course Outcome Statements
C306.1	Demonstrate the analysis of solubility, partition coefficient and dissociation constant of drug molecules
C306.2	Examine the surface characteristics of drugs to develop a stable formulation
C306.3	Measure the HLB value of surfactants
C306.4	Estimate the stability constant of the drug complexes

Department	ACP	Semester	3	Course Code	BP307P	Course ID	C307
Course Title		Pharmaceutical Microbiology- Practical					

Course Outcome No.	Course Outcome Statements
C307.1	Heuristically approach the Simple staining and Grams staining procedures
C307.2	Heuristically approach the acid fast staining procedures, culture media preparation, and sterilization process
C307.3	Demonstrate the microbial assay of antibiotics, bacterial motility, sterility testing of pharmaceuticals, and biochemical tests of water

Department	ACP	Semester	3	Course Code	BP308P	Course ID	C308
Course Title		Pharmaceutical Engineering-Practical					

Course Outcome No.	Course Outcome Statements
C308.1	Study the various factors affecting the rate of filtration, evaporation and crystallization, size reduction and size separation
C308.2	Determine radiation constant, heat transfer, moisture content, loss on drying and humidity of air in pharmaceutical process
C308.3	Demonstrate colloidal mill, planetary mixer, fluidized bed dryer, freeze dryer and other pharmaceutical equipment

ACHARYA & BM REDDY COLLEGE OF PHARMACY

Bengaluru-560107

Department	ACP	Semester	4	Course Code	BP401T	Course ID	C401
Course Title	**Pharmaceutical Organic Chemistry III**						
Course Outcome NO.	**Course Outcome Statements**						
C401.1	Explain the Stereo chemical aspects and reactions of organic compounds						
C401.2	Describe the nomenclature, synthesis and reactions of certain heterocyclic Compounds						
C401.3	Discuss the medicinal derivatives of certain heterocyclic compounds						
C401.4	Apply the principles of reaction mechanism in synthesis of organic compounds						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP402T**	**Course ID**	**C402**
Course Title	**Medicinal Chemistry I**						
Course Outcome No.	**Course Outcome Statements**						
C402.1	Elaborate the role of physicochemical properties of drugs						
C402.2	Describe metabolic pathways of drugs						
C402.3	Explain mechanism of action of drugs						
C402.4	Outline chemical synthesis of mentioned drugs						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP403T**	**Course ID**	**C403**
Course Title	**Physical Pharmaceutics II**						
Course Outcome No.	**Course Outcome Statements**						
C403.1	Discuss the concepts of kinetics, rheology, micromeritics, coarse and colloidal dispersions						
C403.2	Analyze the micromeritics and rheological properties of pharmaceutical systems						
C403.3	Examine the pre-formulation aspects related to colloids, suspensions and emulsions						
C403.4	Estimate the shelf life of the formulation by accelerated stability studies						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP404T**	**Course ID**	**C404**
Course Title	**Pharmacology I**						
Course Outcome No.	**Course Outcome Statements**						
C404.1	Understand the general pharmacological concepts such as scope, history, pharmacokinetics and pharmacodynamics						
C404.2	Illustrate the process of drug discovery and development of new API						
C404.3	Apply the basic pharmacological knowledge to learn various drug receptors and their signaling pathways						
C404.4	Explain the role of neurotransmitters and drugs acting on the Autonomic nervous system						
C404.5	Describe the mechanism of action, pharmacological actions, adverse effects, and therapeutic uses of drugs acting on the Central nervous system						

C404.6	Discuss the various Psychopharmacological agents and their pharmacology						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP405T**	**Course ID**	**C405**
Course Title	**Pharmacognosy and Phytochemistry I**						
Course Outcome No.	**Course Outcome Statements**						
C405.1	Acquire the knowledge of sources, classification and quality control of herbal drugs						
C405.2	Illustrate the methods for Cultivation, Collection, Processing and storage of crude drugs						
C405.3	Learn the fundamental aspects and applications of plant tissue culture						
C405.4	Elaborate definition, classification, properties, use and test for identification of primary and secondary metabolites of plants						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP406P**	**Course ID**	**C406**
Course Title	**Medicinal Chemistry I- Practical**						
Course Outcome No.	**Course Outcome Statements**						
C406.1	Prepare mentioned drugs/intermediates						
C406.2	Analyze percentage purity of mentioned drugs						
C406.3	Determine partition coefficient of drugs						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP407P**	**Course ID**	**C407**
Course Title	**Physical Pharmaceutics II- Practical**						
Course Outcome No.	**Course Outcome Statements**						
C407.1	Compare the micrometrics properties by various techniques						
C407.2	Measure the rheological properties						
C407.3	Investigate the stability of suspensions						
C407.4	Estimate the shelf life of the formulation by accelerated stability studies						
Department	**ACP**	**Semester**	**4**	**Course Code**	**BP408P**	**Course ID**	**C408**
Course Title	**Pharmacology I- Practical**						
Course Outcome No.	**Course Outcome Statements**						
C408.1	Understand the laboratory equipment, methodology and techniques in experimental pharmacology						
C408.2	Apply 3R (Refinement, Reduction and Replacement) principles for effective use of experimental animals as per CPCSEA guidelines						
C408.3	Demonstrate the routes of drug administration and blood withdrawal techniques in rodent						
C408.4	Evaluate pharmacological activity of cholinomimetics and sympatholytic agents in experimental animal						
C408.5	Analyze and evaluate pharmacology of drug acting on CNS						

ACHARYA & BM REDDY COLLEGE OF PHARMACY

Bengaluru-560107

Department	ACP	Semester	4	Course Code	BP409P	Course ID	C409
Course Title		**Pharmacognosy and Phytochemistry I- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C409.1		Identify unorganized drugs by chemical methods					
C409.2		Perform skillfully the qualitative microscopic evaluation of crude drugs					
C409.3		Perform physical standardization of crude drug					
C409.4		Determine the percentage purity of crude drugs					
Department	**ACP**	**Semester**	**5**	**Course Code**	**BP501T**	**Course ID**	**C501**
Course Title		**Medicinal Chemistry II**					
Course Outcome No.		**Course Outcome Statements**					
C501.1		Categorize pharmaceutical substances based on their chemical structure.					
C501.2		Explain the relationship between the chemistry of drugs and their pharmacological activity					
C501.3		Explain the drug metabolic pathways, the adverse effects associated with them, and the therapeutic value these drugs offer					
C501.4		Elucidate the concept of SAR and outline of the chemical synthesis processes involved in various classes of drugs					
Department	**ACP**	**Semester**	**5**	**Course Code**	**BP502T**	**Course ID**	**C502**
Course Title		**Industrial Pharmacy I**					
Course Outcome No.		**Course Outcome Statements**					
C502.1		Describe on pre-formulation factors required for the Formulation and evaluation of tablets					
C502.2		Analyse the formulation and evaluation of hard and soft gelatin capsule and liquid orals					
C502.3		Describe formulation and evaluation of Pellets, Parenteral, Ophthalmic Preparations					
C502.4		Discuss on the Cosmetic preparations, Pharmaceutical Aerosols, Pharmaceutical packing material					
Department	**ACP**	**Semester**	**5**	**Course Code**	**BP503T**	**Course ID**	**C503**
Course Title		**Pharmacology II**					
Course Outcome No.		**Course Outcome Statements**					
C503.1		Describe drug receptor interaction and concepts of ADME					
C503.2		Explain the process of biosynthesis, action and metabolism of various neurotransmitters					
C503.3		Describe the technical aspects of various types of bioassay					
C503.4		Discuss the pharmacological actions of different drugs on various organs					
Department	**ACP**	**Semester**	**5**	**Course Code**	**BP504T**	**Course ID**	**C504**
Course Title		**Pharmacognosy and Phytochemistry II**					

Course Outcome No.	Course Outcome Statements
C504.1	Explain basic metabolic pathways and formation of secondary metabolites through various biosynthetic pathways in plants
C504.2	Discuss the pharmacognosy and phytochemsitry of various secondary metabolites containing drugs.
C504.3	Select the appropriate methods of extraction, isolation and purification of the natural compounds
C504.4	Discuss the methods of isolation, estimation and utilization of the phytoconstituents by various techniques

Department	ACP	Semester	5	Course Code	BP505T	Course ID	C505
Course Title	Pharmaceutical Jurisprudence						

Course Outcome No.	Course Outcome Statements
C505.1	Recognize the various concepts of the pharmaceutical legislation in India with respect to manufacture, import, export, offences and penalties of narcotic, psychotropic substances, medicinal and toilet preparations
C505.2	Comprehend the Drugs and Cosmetics Act and along with its amendment
C505.3	Explain the various Acts and the conditions that prevailed before their enforcement governing the Pharmacy profession in India
C505.4	Identify with the code of professional ethics and apply the Pharmaceutical Jurisprudence knowledge as stipulated by Pharmacy Council of India for solving the real-life problems

Department	ACP	Semester	5	Course Code	BP506P	Course ID	C506
Course Title	Industrial Pharmacy I- Practical						

Course Outcome No.	Course Outcome Statements
C506.1	Prepare the manufacturing of tablets and capsules in lab scale
C506.2	Formulate and evaluate the liquid orals, parenterals, ophthalmics as well as semisolid preparations
C506.3	Evaluate the prepared cosmetic preparations

Department	ACP	Semester	5	Course Code	BP507P	Course ID	C507
Course Title	Pharmacology II- Practical						

Course Outcome No.	Course Outcome Statements
C507.1	Observe the effect of drugs on animals using computer simulation experiments
C507.2	Demonstrate and record the effect of drug on concentration response curve using suitable isolated tissue preparation
C507.3	Evaluate different medicinal agents using computer simulation animal models for its efficacy studies

Department	ACP	Semester	5	Course Code	BP508P	Course ID	C508
Course Title	Pharmacognosy And Phytochemistry II- Practical						

Course Outcome No.	Course Outcome Statements
C508.1	Perform skillfully the macroscopical and microscopical analysis of crude drugs
C508.2	Identify the unorganized crude drug by chemical tests
C508.3	Carry out the extraction and identification of phytoconstituents

Department	ACP	Semester	6	Course Code	BP601T	Course ID	C601

Course Title	Medicinal Chemistry III

Course Outcome No.	Course Outcome Statements
C601.1	Classify pharmaceutical substances according to their chemical structure
C601.2	Explain the metabolic pathways, adverse effects, and therapeutic value of drugs
C601.3	Explain the different concepts encompassed in SAR studies and combinatorial chemistry
C601.4	Outline the synthetic scheme and describe the reaction conditions employed in the synthesis of medicinal compounds

Department	ACP	Semester	6	Course Code	BP602T	Course ID	C602

Course Title	Pharmacology III

Course Outcome No.	Course Outcome Statements
C602.1	Apply the current knowledge of pharmacokinetics and pharmacodynamics of drugs acting on Respiratory system and Gastrointestinal system
C602.2	Explain the general concept of chemotherapy and elaborate on mechanism of action and its relevance in the treatment of different infectious diseases
C602.3	Elucidate the basic principles of toxicology
C602.4	Explain the concepts of chronopharmacology to ease treatment in modern era

Department	ACP	Semester	6	Course Code	BP603T	Course ID	C603

Course Title	Herbal Drug Technology

Course Outcome No.	Course Outcome Statements
C603.1	Recall the importance of herbs in herbal formulations, significance in good agriculture practice and standardization of Ayurvedic dosage form
C603.2	Interpret the vital role of herbs used in nutraceutical and herbal drug interaction
C603.3	Apply the appropriate method for preparation of herbal formulations
C603.4	Summarize the GMP for schedule-T, WHO & ICH guidelines

Department	ACP	Semester	6	Course Code	BP604T	Course ID	C604

Course Title	Biopharmaceutics and Pharmacokinetics

Course Outcome No.	Course Outcome Statements
C604.1	Assess the factors that affect the absorption, distribution, metabolism and elimination of drug and apply these principles for the optimum utilization

	of the drug in the patient						
C604.2	Explain the concepts of Bioavailability and Bioequivalence studies of drug products and their significance						
C604.3	Calculate the pharmacokinetic parameters of IV bolus, IV infusion and extra vascular routes of administration						
C604.4	Apply biopharmaceutical and pharmacokinetics knowledge in the formulation of safe and effective medicines						
Department	**ACP**	**Semester**	**6**	**Course Code**	**BP605T**	**Course ID**	**C605**
Course Title	**Pharmaceutical Biotechnology**						
Course Outcome No.	**Course Outcome Statements**						
C605.1	Discuss the methods of immobilizing the enzymes & production of enzymes						
C605.2	Explain biosensors working and applications of biosensors in Pharmaceutical Industries						
C605.3	Relate the benefits of amplification & manipulation of an organisms DNA and their uses in drugs						
C605.4	Categorise the different types of immunity and role of different biopharmaceutical products in immune mechanism						
C605.5	Summarize the knowledge about the tools, methods, mechanisms and applications of genetic engineering						
C605.6	Illustrate the knowledge of different types of fermenters and employing the acquired knowledge in production of several of number of industrial products						
Department	**ACP**	**Semester**	**6**	Course Code	**BP606T**	**Course ID**	**C606**
Course Title	**Quality Assurance**						
Course Outcome No.	**Course Outcome Statements**						
C606.1	Describe various introductory aspects of quality assurance and quality management systems						
C606.2	Identify the regulatory and administrative authorities, agencies governing bodies						
C606.3	Devise cGMP, GLP, GDP and quality control test for packing materials						
C606.4	Explain Calibration and Qualification of certain analytical equipment						
Department	**ACP**	**Semester**	**6**	**Course Code**	**BP607P**	**Course ID**	**C607**
Course Title	**Medicinal Chemistry III- Practical**						
Course Outcome No.	**Course Outcome Statements**						
C607.1	Describe the importance of chemical structure and their influence on biological activity of medicinal compounds						
C607.2	Perform the chemical synthesis of intermediates/medicinal compounds by following the safety guidelines						
C607.3	Assess the purity of organic/medicinal compounds by performing quantitative analysis						
C607.4	Determination of physicochemical properties and drawing the chemical structures and reactions using drug design software's						

ACHARYA & BM REDDY COLLEGE OF PHARMACY

Bengaluru-560107

Department	ACP	Semester	6	Course Code	BP608P	Course ID	C608
Course Title		**Pharmacology III- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C608.1		Observe the effect of drugs on animals by simulated experiments					
C608.2		Explain the different types of toxicity studies and regulatory guide lines					
C608.3		Understanding importance of data collection and analyzing it					
Department	**ACP**	**Semester**	**6**	**Course Code**	**BP609P**	**Course ID**	**C609**
Course Title		**Herbal Drug Technology- Practical**					
Course Outcome No.		**Course Outcome Statements**					
C609.1		Perform the Preliminary Phytochemical Screening and monograph analysis of Herbal Crude Drug.					
C609.2		Detect the concentration of phytoconstituents present in the sample and calculate the alcoholic content in the formulations					
C609.3		Formulate and evaluate the cosmetic and herbal formulation					
Department	**ACP**	**Semester**	**7**	**Course Code**	**BP701T**	**Course ID**	**C701**
Course Title		**Instrumental Methods of Analysis**					
Course Outcome No.		**Course Outcome Statements**					
C701.1		Interpret the results and data of various categories of drDetect s obtained through spectroscopic techniques					
C701.2		Explain the concept, instrumentation and applications of fluorimetry, flame photometry and nepheloturbidometry					
C701.3		Describe the techniques involved in electrophoresis					
C701.4		Identify and analyze the pharmaceutical drugs by various chromatographic techniques					
Department	**ACP**	**Semester**	**7**	**Course Code**	**BP702T**	**Course ID**	**C702**
Course Title		**Industrial Pharmacy II**					
Course Outcome No.		**Course Outcome Statements**					
C702.1		Discuss the general considerations - including significance of personnel requirements, space requirements, raw materials, Pilot plant scale up considerations for solids, liquid orals, semi solids and relevant documentation					
C702.2		Describe the Technology transfer of Pharmaceutical products, includes R & D,Pilot scale up and during production of API, finished products and packaging materials					
C702.3		Explain the Role of Regulatory affairs Department, Responsibility of Regulatory Affairs Professionals in Investigational New Drug Application, New Drug Application, Investigational brochure, includes clinical trials					
C702.4		Summarize about Quality management, Certifications such as QbD, Six sigma concept, ISO, NABL, GLP and Indian Regulatory Requirements mainly CDSCO					

Department	ACP	Semester	7	Course Code	BP703T	Course ID	C703
Course Title		**Pharmacy Practice**					
Course Outcome No.		**Course Outcome Statements**					
C703.1		Recognize their roles & responsibilities as a hospital pharmacist in primary healthcare and to be able to involve in various hospital pharmacy services like inventory control and drug information provision					
C703.2		Provide pharmaceutical care & patient counselling and to play an important role in encouraging rational drug therapy & essential drug concept					
C703.3		Develop ability to understand the preparation and implementation of budget in a hospital and to develop ability to recognize the function and working of various committees of the hospital					
C703.4		Establish & manage a community pharmacy setting					

Department	ACP	Semester	7	Course Code	BP704T	Course ID	C704
Course Title		**Novel Drug Delivery System**					
Course Outcome No.		**Course Outcome Statements**					
C704.1		Describe the various approaches for development of Novel Drug Delivery Systems controlled drug delivery and uses of different polymers in developing novel drug delivery system					
C704.2		Discuss the various techniques involved in microencapsulation and development and evaluation of mucosomal drug delivery system and implantable drug delivery system					
C704.3		Fabricate, design, evaluation and development of Trans dermal drug delivery system , Gastroretentive drug delivery system and Naso pulmonary drug delivery system					
C704.4		Discuss various approaches for the development of Targeted Drug Delivery System					
C704.5		Explain the development of ocular formulations and intrauterine devices (IUD's) and its application					

Department	ACP	Semester	7	Course Code	BP705P	Course ID	C705
Course Title		**Instrumental Methods Of Analysis - Practical**					
Course Outcome No.		**Course Outcome Statements**					
C705.1		Perform quantitative analysis using different spectroscopic methods					
C705.2		Analyze sample mixtures by colorimetry techniques					
C705.3		Identify the drug by various chromatography techniques					

Department	ACP	Semester	8	Course Code	BP801T	Course ID	C801
Course Title		**Biostatistics And Research Methodology**					
Course Outcome No.		**Course Outcome Statements**					
C801.1		Develop the ability to apply the methods while working on a research project work.					
C801.2		Describe the appropriate statistical methods required for a particular research design.					

C801.3		Choose the appropriate research design and develop appropriate research hypothesis for a Research project.					
C801.4		Develop an appropriate framework for research studies.					
Department	**ACP**	**Semester**	**8**	**Course Code**	**BP802T**	**Course ID**	**C802**
Course Title		**Social And Preventive Pharmacy**					
Course Outcome No.		**Course Outcome Statements**					
C802.1		Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide					
C802.2		Develop critical thinking based on current healthcare development					
C802.3		Evaluate alternative ways of solving problems related to health and pharmaceutical issues					
C802.4		Identify National health programs its objectives functioning and outcomes					
Department	**ACP**	**Semester**	**8**	**Course Code**	**BP803ET**	**Course ID**	**C803**
Course Title		**Pharma Marketing Management**					
Course Outcome No.		**Course Outcome Statements**					
C803.1		Describe socio-psychological characters affecting pharmaceutical marketing, segmentation and market research					
C803.2		Explain practical aspects of product detailing and marketing of pharmaceutical products					
C803.3		Explain importance of advertisement in sales promotion and channels of distribution					
C803.4		Discuss the importance of pricing in pharmaceutical market and how rural market functions					
Department	**ACP**	**Semester**	**8**	**Course Code**	**BP804ET**	**Course ID**	**C804**
Course Title		**Pharmaceutical Regulatory Science**					
Course Outcome No.		**Course Outcome Statements**					
C804.1		Describe the drug discovery and development process					
C804.2		Illustrate the approval process of IND and NDA applications					
C804.3		Acquire the knowledge on technical documentation of Indian drugs					
C804.4		Comprehend the procedure of clinical trials, importance of Pharmacovigilance and regulatory concepts					
Department	**ACP**	**Semester**	**8**	**Course Code**	**BP805ET**	**Course ID**	**C805**
Course Title		**Pharmacovigilance**					
Course Outcome No.		**Course Outcome Statements**					
C805.1		Describe dictionaries, coding and terminologies used in pharmacovigilance					
C805.2		Apply drug safety evaluation in pediatrics, geriatrics, pregnancy and lactation					
C805.3		Explain the detection of new adverse drug reactions and their assessment					
C805.4		Assess Anatomical, Therapeutic and chemical classification of drugs and International classification of diseases					
Department	**ACP**	**Semester**	**8**	**Course Code**	**BP811ET**	**Course ID**	**C811**

ACHARYA & BM REDDY COLLEGE OF PHARMACY

Bengaluru-560107

Course Title	**Advanced Instrumentation Techniques**
Course Outcome No.	**Course Outcome Statements**
C811.1	Determine the structure of various categories of drugs by interpreting the results and data obtained from a variety of analytical techniques such as NMR, Mass, X-ray and thermal analytical techniques
C811.2	Explain the calibration and validation of instruments as per ICH guidelines
C811.3	Describe the importance and procedure involved in radio-immuno assay and extraction techniques
C811.4	Discuss the separation of pharmaceutical drugs by various hyphenated techniques