



Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 21001:2018 Certified

Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. +91 8645 - 350 200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2576129

KL College of Pharmacy

Program: B. Pharmacy

Academic Year :2023-2024

Course Code	Course Title	CO. No	Description of the course Outcome
22PY1101T	Human Anatomy and Physiology-I (Theory)	CO1	Describe the cellular level and tissue level organization of an organ in human body
		CO2	Describe the anatomical features and physiology of skin, bone and skeletal muscle and joints and their related disorders
		CO3	Summarize the anatomical and physiological functions of blood and heart and their related disorders
		CO4	Describe the physiological aspects and pathological peripheral nervous system
22PY1101P	Human Anatomy and Physiology-I (Practical)	CO1	To identify the gross anatomy and functions of microscope, connective tissues, skeletal system, and understanding and performance of bleeding and clotting time.
		CO2	To understand and performs the blood group analysis, ESR rate, heart rate, pulse, BP, and measurement of hemoglobin, RBC, and WBC counts.
22PY1102T	Pharmaceutical Analysis (Theory)	CO1	Outline Preparation and standardization of different molar and normal solutions. Enlist Sources, types and methods of Minimizing errors.
		CO2	Understand the theories and classifications of volumetric titrations
		CO3	Understanding the Importance of complexometry, masking and demasking agents. Concepts of Redox-titrations.
		CO4	Illustrate Construction and working of Reference and indicator electrodes
22PY1102P	Pharmaceutical Analysis (Practical)	CO1	Determining the exact amount and concentration of chemical substances
		CO2	Determining the exact amount, concentration and normality of chemical substances
22PY1103T	Pharmaceutics (Theory)	CO1	Understand the history and development of profession of pharmacy
		CO2	Apply the knowledge on pharmaceutical calculations
		CO3	Understand the principles involved in the formulation

S. Praveen

G. Chaitanya
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

			of liquid dosage forms
		CO4	Understand the principles involved in the formulation development of semisolid dosage forms
22PY1103P	Pharmaceutics (Practical)	CO1	Classifying various solid and liquid dosage forms, preparation and dispensing of ORS powder, effervescent granules, dusting powders, powders, Syrups, Elixirs, Linctus, Solutions, Gargles and Mouthwashes
		CO2	Classification of Biphasic liquid dosage forms and semi solid dosage forms, preparing and dispensing of Suspensions, Emulsions, suppositories, ointments and gels
22PY1104T	Pharmaceutical Inorganic Chemistry (Theory)	CO1	Classify various inorganic compounds, sources of Impurities and test for purity of Impurities
		CO2	Understand the monograph study of various inorganic compounds
		CO3	Understand the monograph study of various inorganic compounds belongs to Dental products & Gastro-intestinal agents
		CO4	Understand the monograph study of various inorganic compounds belongs to Miscellaneous agents & Radiopharmaceuticals
22PY1104P	Pharmaceutical Inorganic Chemistry (Practical)	CO1	Test for "Limit tests "for the ions and Identification tests
		CO2	Determination of purity of various inorganic compounds and preparation of inorganic pharmaceuticals
22PY1105T	Communication Skills (Theory)	CO1	Apply the practical knowledge using action verbs.
		CO2	Analyze the pronunciations.
		CO3	Applying the concept of probability.
		CO4	Analyze the given conditions and finding out all the possible arrangements in linear & circular order
22PY1105P	Communication Skills (Practical)	CO1	Apply the practical of basic communication and analyze the pronunciations
		CO2	Applying the concept of probability and Analyzing the given conditions and finding out all the possible arrangements in linear & circular order.
22PY1106RBT	Remedial Biology (Theory)	CO1	Introduce biology to non-biology students
		CO2	Know the classification and salient features of five kingdoms of life
		CO3	Understand the basic components of anatomy & physiology of plant
		CO4	Understand the basic components of anatomy & physiology animal with special reference to human
22PY1106RBP	Remedial Biology (Practical)	CO1	Demonstration of experiments in biology and application of In silico models to demonstrate experiments on frog
		CO2	Identification of tissues and Determination of BP, Blood group and TV

S. Praveen

G. Chetkavaram
PRINCIPAL
Koneru Lakshmaiah Educational Founda.
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY1106RMT	Remedial Mathematics (Theory)	CO1	Introduce essential of mathematics to biology students.
		CO2	Know theory and applications of Mathematics
		CO3	Solve problems applying theoretical concepts
		CO4	Appreciate the important application of mathematics in Pharmacy
22PY1207T	Human Anatomy and Physiology-II (Theory)	CO1	Understand the gross morphology, structure and functions of Central Nervous system and Brain
		CO2	Understand the gross morphology, structure and functions of digestive system. Formation and role of ATP, Creatinine Phosphate and BMR
		CO3	Understand the gross morphology, structure and functions of respiratory and urinary system.
		CO4	Understand the gross morphology, structure and functions of endocrine and reproductive system
22PY1207P	Human Anatomy and Physiology-II (Practical)	CO1	Demonstrate the gross anatomy and functions of nervous, endocrine, integumentary and special senses, functions of the olfactory nerve, neurological, visual and reflex activity; Applying the skills and knowledge required to perform laboratory experiments safely with appropriate equipment.
		CO2	Demonstration on positive and negative feedback mechanism, body temperature, tidal volume and vital capacity, basal mass index, total blood count by cell analyser, basal mass index, total blood count by cell analyser.
22PY1208T	Pharmaceutical Organic Chemistry I (Theory)	CO1	Understand the structure, name and the type of isomerism of the organic compound
		CO2	Understand the name of the reaction and orientation of reactions
		CO3	Understand the reactivity /stability of compound
		CO4	Understand the Named reactions in Organic chemistry
22PY1208P	Pharmaceutical Organic Chemistry I (Practical)	CO1	Test for organic compounds, detection of elements and their functional groups
		CO2	Identification of unknown compounds and preparation of derivatives
22PY1209T	Biochemistry (Theory)	CO1	Understand The Principles of Chemistry in biology
		CO2	Understand the catalytic role of enzymes and enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
		CO3	Understand the metabolism of nutrient molecules in physiological and pathological conditions
		CO4	Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
22PY1209P	Biochemistry (Practical)	CO1	Qualitative and quantitative analysis of carbohydrates, proteins, cholesterol, measurement of pH and blood cholesterol
		CO2	Preparation of buffer solutions, Enzymatic hydrolysis of biomolecules and salivary enzyme activity.

S. Praveen

G. Chakravarthi

PRINCIPAL
KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY1210T	Pathophysiology (Theory)	CO1	Understand the causes, progression of injury, inflammation and repair
		CO2	Understand the causes and pathogenesis of diseases related to cardio vascular system and Central nervous system
		CO3	Understand the pathophysiology of diseases related to respiratory system and Gastro Intestinal system
		CO4	Understand the concepts of pathogenesis of different communicable diseases and cancer
22PY1211T	Computer Applications in Pharmacy (Theory)	CO1	To understand the knowledge of Numbering system and its calculations. Understand the concepts of Information System and software
		CO2	To know the knowledge using HTML, XML, CSS, MS access languages. Understand the concepts of web technologies.
		CO3	To understand the various types of application of computers in pharmacy
		CO4	To know knowledge on Data analysis in preclinical development Understand the concept of Bioinformatics.
22PY1211P	Computer Applications in Pharmacy (Practical)	CO1	Apply knowledge on creating a HTML web page to show personal information. Understand to Design a questionnaire using a word processing package to gather information about a particular disease. Know to retrieve the information of a drug and its adverse effects using online tools; Apply knowledge on creating mailing labels Using Label Wizard, generating label in MSWORD, create a database in MS Access to store the patient information with the required fields Using access, design a form in MS Access to view, add, delete and modify the patient recording the database
		CO2	Apply knowledge for Drug information storage and retrieval using MS Access. Understand to generating report and printing the report from the patient database 8 Creating invoice table using – MS Access; Apply knowledge Creating and working with queries in MS Access, Exporting Tables, Queries, Forms and Reports to web page, Exporting Tables, Queries, Forms and Reports to XML pages
22PY1212T	Environmental Sciences (Theory)	CO1	Understand the importance of Environmental education and conservation of natural resources
		CO2	Understand the importance of renewable natural resources
		CO3	Understand the importance of ecosystems and biodiversity
		CO4	Understand the environmental science knowledge on solid waste management, disaster management and EIA process
23UC1101	Integrated Professional English	CO1	Understanding the language Mechanics in Basic Grammar & Interactive Listening & Speaking
		CO2	Applying Integrated Reading skills & Techniques of Writing

S. Praveen.

G. Chakravarthi
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY2113T	Pharmaceutical Organic Chemistry –II (Theory)	CO1	Understand Aromatic nature and type of chemical reactions of organic compound
		CO2	Understand account for reactivity of Polycyclic Aromatic compounds and different Strain theories
		CO3	Understand about substituted Aromatic compounds, their preparation and properties
		CO4	Understand the study of sugars, amino acids, proteins, fats and oils and effects of various parameters
22PY2113P	Pharmaceutical Organic Chemistry –II (Practical)	CO1	Preparation of some organic compounds using different types of reactions
		CO2	Determination of quality of various oils by Acid value, Saponification value, and Iodine value and discuss the purification techniques and their importance in chemistry
22PY2114T	Physical Pharmaceutics-I (Theory)	CO1	Understand the Solubility of drugs and mechanisms of solute solvent interactions
		CO2	Understand the Principles involved in States of Matter and properties of matter and Physicochemical properties of drug molecules
		CO3	Understand the Concepts involved in Surface and interfacial phenomenon.
		CO4	Application of Complexation and protein binding and determination of PH in biological systems
22PY2114P	Physical Pharmaceutics-I (Practical)	CO1	Application of several Principles involved in States of Matter and properties of matter and Physicochemical properties of drug molecules and interactions of various substances and various factors that influence the Solubility of drugs and mechanisms of solute-solvent interactions
		CO2	Applying Concepts involved in Surface and interfacial phenomenon, Complexation and protein binding and determination of PH in biological systems
22PY2115T	Pharmaceutical Microbiology (Theory)	CO1	Understand methods of identification, cultivation and preservation of various microorganisms
		CO2	Understand the importance and implementation of sterilization in pharmaceutical processing and industry
		CO3	Understand morphology, replication of fungi, virus, and Learn sterility testing of pharmaceutical products.
		CO4	Understand microbiological standardization of Pharmaceuticals.
22PY2115P	Pharmaceutical Microbiology (Practical)	CO1	Study of different equipments used in experimental microbiology, to perform the preparation of culture media and sterilization of glassware. Applying the knowledge of sterilization techniques and isolation of Pure Cultures
		CO2	To apply the staining techniques of bacteria, demonstration of bacterial motility by hanging drop technique. To perform the microbiological assays of antibiotics, sterility testing of pharmaceuticals,

S. Praveen

G. Chakravarthi
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

			biochemical tests of Microorganisms
22PY2116T	Pharmaceutical Engineering (Theory)	CO1	Understand the concept of flow of fluids and various principles and equipment involved in size separation and size reduction techniques
		CO2	Understand the concept of Heat transfer and principles and equipment involved in evaporation and distillation
		CO3	Apply the concepts of drying and mixing in operation of pharmaceutical manufacturing dosage forms
		CO4	Understand various materials involved in pharmaceutical manufacturing process, principles and equipments involved in filtration and centrifugation
22PY2116P	Pharmaceutical Engineering (Practical)	CO1	To know various unit operations used in pharmaceutical industries and material handling techniques
		CO2	Understand various processes involved in pharmaceutical manufacturing process and acquiring knowledge on operation of pharmaceutical manufacturing equipment
23UC1202	English Proficiency	CO1	Understanding Language Mechanics in advanced Grammar and advanced Communicative Listening & Speaking
		CO2	Applying the advanced Reading techniques and Advanced Techniques of Writing
23UC1203	Design Thinking and Innovation	CO1	Understand the importance of Design thinking mindset for identifying contextualized problems
		CO2	Analyze the problem statement by empathizing with user
		CO3	Develop ideation and test the prototypes made
		CO4	Explore the fundamentals of entrepreneurship skills for transforming the challenge into an opportunity
22PY2217T	Pharmaceutical Organic Chemistry III (Theory)	CO1	Describes stereoisomerism and racemic modification of compound
		CO2	Account for stereo specific reactions and its nomenclature of given organic compounds
		CO3	Detail study of Heterocyclics, its nomenclature, synthesis and its reactions
		CO4	Description of preparative methods, medicinal uses of heterocyclic drugs and Study of Named reactions.
22PY2218T	Medicinal Chemistry I (Theory)	CO1	Understand the correlation of pharmacology of a disease with physico-chemical properties of drugs
		CO2	Understand the chemistry, metabolic pathways, structure activity relationship and therapeutic value of adrenergic drugs
		CO3	Understand the chemistry, metabolic pathways, structure activity relationship and therapeutic value of cholinergic drugs
		CO4	Understand the chemistry, metabolic pathways, structure activity relationship and therapeutic value of CNS drugs

S. Praveen

G. Chetana

PRINCIPAL
 KL College of Pharmacy
 Koneru Lakshmaiah Educational Foundation
 (Deemed to be University)
 Green Feilds, Vaddeswaram-522502
 Guntur District, Andhra Pradesh.

22PY2218P	Medicinal Chemistry I (Practical)	CO1	Perform chemical synthesis of some drugs; Perform chemical synthesis of some intermediates in chemical reactions
		CO2	Perform the assays for few drugs to identify its purity; Determination of a physical property, partition coefficient for few drugs
22PY2219T	Physical Pharmaceutics II (Theory)	CO1	Apply the principles of colloidal systems and their properties and rheological behaviour of pharmaceutical systems
		CO2	Application of physical parameters in designing of dispersed systems
		CO3	Apply the principles of particle surface characteristics in study of powdered materials and application of these concepts in designing of dosage forms.
		CO4	Apply the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
22PY2219P	Physical Pharmaceutics II (Practical)	CO1	Apply the principles of colloidal systems and their properties and rheological behaviour of pharmaceutical systems and physical parameters in designing of dispersed systems
		CO2	Apply the principles of particle surface characteristics in study of powdered materials and application of these concepts in designing of dosage forms and the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
22PY2220T	Pharmacology I (Theory)	CO1	Understanding the pharmacological actions of different categories of drugs
		CO2	Understand the mechanism of drug action at the organ system/subcellular/macromolecular level
		CO3	Applying the basic knowledge of pharmacology in PNS
		CO4	Applying the effect of drugs on CNS
22PY2220P	Pharmacology I (Practical)	CO1	Application of basic principles of pharmacology and common laboratory techniques
		CO2	Examining drugs using pharmacological equipments (In silico) and analysing the effect of drugs on stereotype and catatonic activity
22PY2221T	Pharmacognosy And Phytochemistry I (Theory)	CO1	To know the knowledge of crude drugs and its evaluation
		CO2	To know about the cultivation, collection and processing of crude drugs
		CO3	Know about the traditional systems of medicine and a brief introduction about secondary metabolites
		CO4	To know about the carbohydrate, lipids, enzymes, and marine containing natural drugs
22PY2221P	Pharmacognosy And Phytochemistry I (Practical)	CO1	Applying the knowledge of chemical evaluation in identifying and physical evaluation of crude drugs
		CO2	Applying the knowledge of microscopical evaluation of crude drugs by linear measurements and leaf constants

S. Hanuman

G. Challekani

PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY3122T	Medicinal Chemistry II (Theory)	CO1	Understanding the nomenclature, chemistry, metabolism, structure-activity relationship, mechanism of action, synthesis (few drugs)
		CO2	Understanding the nomenclature, chemistry, metabolism, structure-activity relationship, mechanism of action, synthesis (few drugs) and uses of anti-anginal, Antihypertensive and diuretic drugs
		CO3	Applying the knowledge of the nomenclature, chemistry, metabolism, structure- activity relationship, mechanism of action, synthesis (few drugs) and uses of anti- arrhythmic, anticoagulant, antihyperlipidemic and local anaesthetic drugs and drug used in cardiac failure
		CO4	Applying the knowledge of the nomenclature, chemistry, metabolism, structure-activity relationship, mechanism of action, synthesis (few drugs) and uses of Antidiabetic drugs, hormones and steroid drugs
22PY3123T	Industrial Pharmacy I (Theory)	CO1	Understand about Physicochemical properties of drug that influences the performance of drug and dosage form
		CO2	Understand the formulation, manufacturing, evaluation of tablets, liquid orals, capsules and pelletization.
		CO3	Understand different considerations related to parenterals and ophthalmic products
		CO4	Apply the formulation, preparation and evaluation of cosmetics and aerosols. A note on packaging materials for pharmaceutical products
22PY3123P	Industrial Pharmacy I (Practical)	CO1	Know about Physicochemical properties of drug that influences the performance of drug and dosage form, Applying the preparation and evaluation of capsules and coated tablets.
		CO2	Analysing the preparation and evaluation of injections, Analysing the evaluation of creams
22PY3124T	Pharmacology II (Theory)	CO1	Understanding Pharmacology of cardio vascular system drugs: congestive heart failure drugs, Anti-hypertensive drugs, Anti-anginal drugs, Anti-arrhythmic drugs, Anti-hyperlipidemic drugs
		CO2	Understanding the pharmacology of shock, Hematinics, coagulants and anticoagulants, Fibrinolytics and anti-platelet drugs, diuretics and autocooids
		CO3	Understand the Pharmacology of drugs acting on endocrine system. Anterior Pituitary hormones, Thyroid hormones, Insulin, Oral Hypoglycemic agents and glucagon, ACTH and corticosteroids.
		CO4	Applying the Principles of Bioassays & understanding estrogens, progesterone and oral contraceptives. Drugs acting on the uterus
22PY3124P	Pharmacology II (Practical)	CO1	Analysing the pharmacological activity of drugs on Cardiac and Renal system and dose responses on isolated tissues (Insilco)

S. Praveen

G. Cheluvand
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Fields, Vaddeswaram-522502
Guntur District, Andhra Pradesh

		CO2	Examining the potency of drugs by Bioassays and Analysing the effect of drugs on analgesic and inflammation
22PY3125T	Pharmacognosy and Phytochemistry II (Theory)	CO1	Understand the importance of the basic metabolic pathways occurring in higher plants
		CO2	Understand the importance of biological sources of various crude drugs
		CO3	Understand the extraction procedures of crude drugs
		CO4	Production of the phytoconstituents and identification of it.
22PY3125P	Pharmacognosy and Phytochemistry II (Practical)	CO1	Identification of phytoconstituents in the crude drug by chemical tests
		CO2	Isolation and detection of Phytoconstituents from crude drugs
22PY3126T	Pharmaceutical Jurisprudence (Theory)	CO1	Understanding the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
		CO2	Understanding Various Indian pharmaceutical Acts and Laws
		CO3	Understanding the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
		CO4	Understanding the code of ethics during the pharmaceutical practice
22PY3123S	Production Process for API/Bulk Drug/Intermediates	CO1	Apply the knowledge of fundamental science in API Production, understanding the role of API in pharmaceutical manufacturing and particle size in formulation
		CO2	Perform downstream process of filtration, centrifugation, extraction, cleaning of reactor, receiver, condenser, and other API manufacturing plant components vaporation, crystallization, drying and size reduction
22PY3227T	Medicinal Chemistry III (Theory)	CO1	Understand the chemistry, SAR, classification of different Beta - lactam, Aminoglycoside, Tetracyclines, Macrolide's antibiotics, and the concept of prodrug.
		CO2	Understand the chemistry, SAR, classification of different Antimalarials, Anti tubercular agents, Anti protozoal, Anthelmintics antibiotics.
		CO3	Understand the chemistry, SAR, classification of different Urinary tract Anti-Infective agents, Anti-viral, Anti-fungal antibiotics.
		CO4	Understand the chemistry, SAR, classification of different Sulfonamides and sulfones. Know the importance of QSAR of drugs drug design and combinatorial chemistry
22PY3227P	Medicinal Chemistry III (Practical)	CO1	Preparation of drugs and intermediates, Assay of drugs, Preparation of medicinally important compounds or intermediates by Microwave irradiation technique
		CO2	Drawing structures and reactions using chem draw® Determination of physicochemical properties such as logP, clogP, MR, Molecular weight, Hydrogen bond

S. Praveen

G. Chellaboina
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Fields, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

			donors and acceptors for class of drugs course content using drug design software Drug likeliness screening (Lipinski's RO5)
22PY3228T	Pharmacology III (Theory)	CO1	Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
		CO2	Understand the mechanism of drug action antibiotics and drugs used commonly infected diseases
		CO3	Understand the immunopharmacology
		CO4	Comprehend the principles of toxicology and treatment of various poisonings
22PY3228P	Pharmacology III (Practical)	CO1	Obtain the knowledge on introduction to experimental Pharmacology, common laboratory animals, agonist and antagonist activities of drugs on isolated tissues. Get trained on screening of anti-allergic drugs, anti-ulcer drugs and gastro intestinal activity
		CO2	Estimation of different biochemical parameters using semi auto analyser and obtain a knowledge on screening of hypo glycaemic drugs, Pyrogen testing, Trained in performing of toxicity studies, and get knowledge in application of Biostatistics in Pharmacological research.
22PY3229T	Herbal Drug Technology (Theory)	CO1	Apply the knowledge on formulation of Ayurvedic dosage form understand raw material as source of herbal drugs from cultivation to herbal drug product
		CO2	Understand the concept of Nutraceuticals and their role in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastrointestinal diseases
		CO3	Apply the knowledge on formulation of Herbal Cosmetics using Herbal excipients
		CO4	Understand the WHO and ICH guidelines for evaluation of herbal drugs. Understand Regulatory Issues -Regulations in India and Schedule T
22PY3229P	Herbal Drug Technology (Practical)	CO1	Test for preliminary phytochemical screening and determination of phytochemical constituents
		CO2	Evaluation of natural origins and application of herbal products in cosmetics
22PY3230T	Biopharmaceutics And Pharmacokinetics (Theory)	CO1	Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance
		CO2	To understand the concepts of bioavailability and bioequivalence of drug products and their significance
		CO3	Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
		CO4	Understand various pharmacokinetic parameters, their significance & applications.

S. Praneer

G. Challevaru
PRINCIPAL
KL College of Pharmacy
Koneru Lakshmaiah Educational Foundati.
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY3231T	Pharmaceutical Biotechnology (Theory)	CO1	Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
		CO2	Applications of genetic engineering in relation to production of pharmaceuticals
		CO3	Understanding the importance of immunity and Importance of preparation of immunological preparation and Monoclonal antibodies in Industries
		CO4	Appreciate the use of microorganisms in fermentation technology
22PY3232T	Quality Assurance (Theory)	CO1	Understand the cGMP aspects in a pharmaceutical industry
		CO2	Understand the importance of organization and personnel
		CO3	Understand the scope of quality certifications applicable to pharmaceutical industries
		CO4	Understand the responsibilities of QA & QC departments
22PY4133T	Instrumental Method of Analysis (Theory)	CO1	Understand the intensity and wavelength distribution of absorption and emission spectrum after excitation by a certain spectrum of light
		CO2	Interpret chemical compounds by molecular vibrations and identify chemical elements by measuring emitted light intensity, on absorption of optical radiation by free atoms and measuring intensities of scattered and emitted light through samples
		CO3	Know concepts of Chromatography and techniques used in resolving complex mixtures into individual compounds.
		CO4	Acquire knowledge on various instrumental procedure involving Chromatographic principles.
22PY4133P	Instrumental Method of Analysis (Practical)	CO1	Estimation of samples by using UV, Colorimetry, Fluorimetry
		CO2	Estimation of samples by using Flame photometry, Nephelo turbidometry, paper chromatography, thin layer chromatography, column chromatography, HPLC, Gas Chromatography.
22PY4134T	Industrial Pharmacy II (Theory)	CO1	Understand the process of pilot plant and scale up of pharmaceutical dosage forms
		CO2	Understand the process of technology transfer from lab scale to commercial batch
		CO3	Understand different Laws and Acts that regulate pharmaceutical industry
		CO4	Application of the approval process and regulatory requirements for drug products
22PY4135T	Pharmacy Practice (Theory)	CO1	To understand hospital organization and its functions along with application of ADRs.
		CO2	To understand various drug distribution methods, TDM and medication adherence of patients
		CO3	To understand in detail about PTC, Drug information services and patient counselling
		CO4	To understand and apply the activities of clinical pharmacists along with investigation of laboratory data

S. Praveen

G. Chellurank
PRINCIPAL

KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Fields, Vaddeswaram-522502
Guntur District, Andhra Pradesh.

22PY4136T	Novel Drug Delivery Systems (Theory)	CO1	Understand the Various approaches of controlled drug delivery system and Microspheres
		CO2	Understand the various approaches for development of Mucosal drug delivery systems, implantable, buccal drug delivery sytem
		CO3	Understand the approaches and Evaluation of Transdermal, Gastro retentive and Naso pulmonary drug delivery system.
		CO4	Apply the concept and approaches ocular and targeting methods such as liposomes, niosomes, and nanoparticles
22PY4137PS	Practice School	CO1	Educational initiatives seeking to introduce industry perspective in education
		CO2	To acquire learning by applying the knowledge and the skills they possess
		CO3	Simulation of the Industry environment into the process of education
		CO4	Industrial training through experimental and cooperative learning
		CO5	Promotes Partnership and intellectual exchange between academia and industry
22UC0010	Universal Human Values & Professional Ethics	CO1	Understand and analyse the essentials of human values and skills, self-exploration, happiness and prosperity.
		CO2	Evaluate coexistence of the "I" with the body.
		CO3	Identify and associate the holistic perception of harmony at all levels of existence.
		CO4	Develop appropriate technologies and management patterns to create harmony in professional and personal lives.
22PY4133S	Operation of Analytical Instruments	CO1	Operation of analytical instruments used in life sciences sector
		CO2	Operation of analytical instruments used in life sciences sector and in pharmacy industry
22PY4238T	Biostatistics And Research Methodology (Theory)	CO1	Understand high consciousness/realization of current issues related to health and pharmaceutical problems with in the country and worldwide.
		CO2	Prioritize healthcare development.
		CO3	Evaluate alternative ways of solving problems related to health and pharmaceutical issues
		CO4	Design a better health care service system.
22PY4239T	Social And Preventive Pharmacy (Theory)	CO1	Understand current issues related to health and Pharmaceutical problems within the country and worldwide.
		CO2	Applying current healthcare development for critical way of thinking.
		CO3	Understanding alternative ways of solving problems related to health issues through various healthcare programs
		CO4	Understanding alternative ways of solving problems related to sanitation and hygiene.

S. Praveen

G. Chellappa

PRINCIPAL
 KL College of Pharmacy
 Koneru Lakshmaiah Educational Foundation
 (Deemed to be University)
 Green Feilds, Vaddeswaram-522502
 Guntur District, Andhra Pradesh.

22PY4240ET	Pharma Marketing Management (Theory)	CO1	To provide an understanding of sales and marketing of pharmaceutical products
		CO2	Know about various policies for drug inventory management
		CO3	Know about retail and wholesale marketing
		CO4	Understand business potential and development in product sales and manufacturing
22PY4241ET	Pharmaceutical Regulatory Science (Theory)	CO1	Know about the process, legal aspects, quality policies of drug discovery and development and manufacturing in India
		CO2	Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
		CO3	Know the regulatory approval process in India
		CO4	Know about the registration of drug product in Indian and international markets
22PY4242ET	Pharmacovigilance (Theory)	CO1	Understanding the monitoring aspects of Pharmacovigilance
		CO2	Understanding the monitoring aspects of Pharmacovigilance
		CO3	Understanding the monitoring aspects of Pharmacovigilance.
		CO4	Understanding the medical codes used in the pharmacovigilance industry.
22PY4243ET	Quality Control and Standardization of Herbals (Theory)	CO1	Know WHO guidelines for quality control of herbal drugs
		CO2	Know Quality assurance in herbal drug industry
		CO3	Know the regulatory approval process and their registration in Indian and international markets
		CO4	Appreciate EU and ICH guidelines for quality control of herbal drugs
22PY4244ET	Computer Aided Drug Design (Theory)	CO1	Design and discovery of lead molecules
		CO2	Application of drug design in drug discovery process
		CO3	Application of the concept of QSAR and docking
		CO4	Understand various strategies to develop new drug like molecules
22PY4245ET	Cell and Molecular Biology (Theory)	CO1	Understanding basics and applications of cell and molecular biology
		CO2	Understanding chemical foundations and cellular process
		CO3	Understand of science of genetics.
		CO4	Understand the principle of cell signalling
22PY4246ET	Cosmetic Science (Theory)	CO1	Principles of formulation and building blocks of skin care products
		CO2	Principles of formulation and building blocks of Hair care products
		CO3	Principle of formulation of oral care products and Role of herbs in cosmetics
		CO4	Principles of Cosmetic Evaluation

S. Hanuman

G. Chellaboina

PRINCIPAL
 KL College of Pharmacy
 Koneru Lakshmaiah Educational Foundat.
 (Deemed to be University)
 Green Feilds, Vaddeswaram-522502
 Guntur District, Andhra Pradesh.

22PY4247ET	Experimental Pharmacology (Theory)	CO1	Discuss the applications of various commonly used laboratory animals in preclinical research
		CO2	Understand the animal screening models for various indications
		CO3	Understand the animal screening models for nervous system related indications
		CO4	Understand the importance of biostatistics and research methodology in clinical and preclinical research
22PY4248 ET	Advanced Instrumentation Techniques (Theory)	CO1	Understand the advanced instruments used and its applications in drug analysis
		CO2	understand the chromatographic separation and analysis of drugs.
		CO3	Understand the calibration of various analytical instruments
		CO4	Application of analysis of drugs using various analytical instruments
22PY4249ET	Dietary Supplements and Nutraceuticals (Theory)	CO1	Understand the need of supplements by the different group of people to maintain healthy life..
		CO2	Understand the outcome of deficiencies in dietary supplements
		CO3	Appreciate the components in dietary supplements and the application
		CO4	Appreciate the regulatory and commercial aspects of dietary supplements including health claims.
22PY4250PW	Project Work	CO1	Application of Pharmacy in clinical settings
		CO2	Application of modern tools usage
		CO3	Application of pharmacy knowledge in communication skills and ethics
		CO4	Application of Pharmacy knowledge in research development

S. Praveen
Academic Professor I/C

G. Chakravarthi
Principal
PRINCIPAL
KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Guntur District, Andhra Pradesh.