



Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A' Grade University ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

Campus: Green Fields, Vaddeswaram - 522 502, Guntur District, Andhra Pradesh, INDIA.

Phone No. 0863 - 2399999; 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 -2577715, Fax: +91-866-2577717.

KL College of Pharmacy

Program: B. Pharmacy

Academic Year :2018-2019


Course Code	Course Title	CO. No	Description of the course Outcome
18PH1101	Human Anatomy and Physiology-I	CO1	Explain the gross morphology, structure and functions of various organs of the human body.
		CO2	Describe the various homeostatic mechanisms and their imbalances.
		CO3	Identify the various tissues and organs of different systems of human body.
		CO4	Understand the organ functions
		CO5	Perform the various experiments related to physiology and health.
18PH1102	Pharmaceutical Analysis	CO1	Understand the principles of volumetric and electro chemical analysis
		CO2	Carry out various volumetric and electrochemical titrations
		CO3	Develop analytical skills
		CO4	Reporting analytical result and data integrity
		CO5	Perform various analytical experiments
18PH1103	General Pharmaceutics	CO1	Know the history of profession of pharmacy
		CO2	Understand the basics of different dosage forms
		CO3	Understand the pharmaceutical incompatibilities and pharmaceutical calculations
		CO4	Understand the professional way of handling the prescription
		CO5	Apply the knowledge to prepare various conventional dosage forms
18PH1104	Pharmaceutical Inorganic Chemistry	CO1	Know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
		CO2	Understand the medicinal and pharmaceutical importance of inorganic compounds
		CO3	Know the preparation and analysis of inorganic medicinal compounds
		CO4	Know their diagnostic applications
		CO5	Apply the knowledge to prepare various inorganic pharmaceuticals

G.S.N.P. Rao

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


18UC1101	Basic English	CO1	Apply the practical knowledge of using action words in sentence construction.
		CO2	Apply and analyse the right kind of pronunciation with regards to speech sounds and able to get different types of pronunciations.
		CO3	Apply the concept of fundamental principle of counting to solve the problems on linear, circular permutations and also for the problems on selections. Apply the concept of probability, while doing the problems on Leap year & Non-Leap year problems, coins, dice, balls and cards.
		CO4	Analyze the given conditions and finding out all the possible arrangements in linear & circular order. Analyze the given numbers or letters to find out the hidden analogy and apply that analogy to find solutions. Finding the odd man out by observing the principle which makes the others similar.
18PH1106RB	Remedial Biology	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	Know understand the basic components of anatomy & physiology animal with special reference to human
18PH1106RM	Remedial Mathematics	CO1	Understand the essentials of mathematics
		CO2	Know theory and applications of Mathematics
		CO3	Solve problems applying theoretical concepts
		CO4	Application of Pharmacy in Life sciences
18PH1207	Human Anatomy and Physiology II	CO1	Explain the gross morphology, structure and functions of various organs of the human body.
		CO2	Describe the various homeostatic mechanisms and their imbalances.
		CO3	Identify the various tissues and organs of different systems of human body.
		CO4	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.
		CO5	Apply the knowledge to perform various physiology experiments
18PH1208	Pharmaceutical Organic Chemistry I	CO1	Write the structure, name and the type of isomerism of the organic compound
		CO2	Write the reaction, name the reaction and orientation of reactions
		CO3	Account for reactivity/stability of compounds,
		CO4	Identify/confirm the identification of organic compound
		CO5	Apply the knowledge to synthesize various organic compounds

G.S.W.K.R.


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

18PH1209	Biochemistry	CO1	Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
		CO2	Understand the metabolism of nutrient molecules in physiological and pathological conditions.
		CO3	Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
		CO4	Apply the knowledge to estimate various biochemical parameters in physiological systems
		CO5	Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
18PH1210	Pathophysiology	CO1	Understand the conditions leading to a disease
		CO2	Describe the etiology and pathogenesis of the selected disease states
		CO3	Name the signs and symptoms of the diseases
		CO4	Mention the complications of the diseases.
18PH1211	Computer Applications in Pharmacy	CO1	Know the various types of application of computers in pharmacy
		CO2	Know the various types of databases
		CO3	Know the various applications of databases in pharmacy
		CO4	Know the web-based tools for pharmacy practice
		CO5	Apply the knowledge to design and develop digital tools for pharmaceutical applications
18UC0009	Ecology & Environment	CO1	Understand the importance of Environmental education and conservation of natural resources.
		CO2	Understand the importance of ecosystems and biodiversity.
		CO3	Apply the environmental science knowledge on solid waste management, disaster management and EIA process.
18UC1202	English Proficiency	CO1	Identify the structure and usage of phrases, clauses and sentences along with the techniques of learning vocabulary, concord and sentence equivalence and apply the strategies in different contexts.
		CO2	Identify formats and parameters of writing skills and apply in product and process descriptions.
		CO3	Apply the methods of fundamental concepts of tabulation, line-graphs, bar-graphs and pie charts in Data Interpretation and statements in Data Sufficiency
		CO4	Identify the basic symbols and notations to find out the hidden analogy to solve sequences
18PH2113T	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 the preparation and properties of aromatic compounds
		CO4	Application of SAR on medical uses of selected drugs

G.S.N.D Rev


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

18PH2113P	Pharmaceutical Organic Chemistry II (Practical)	CO1	Application of laboratory techniques
		CO2	Determination of oil values
		CO3	Preparation of various Organic compound
		CO4	Synthesis of various organic compounds
18PH2114T	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
18PH2114P	Physical Pharmaceutics I (Practical)	CO1	Application of the principles of physical chemistry in development of colloidal systems and determining the stability of colloidal drug delivery systems
		CO2	Understand the different types of liquids based on the viscosity and viscosity determination techniques and their applications in pharmacy.
		CO3	Design a stable suspension / emulsion by using principles of dispersed systems
		CO4	Application of surface properties of solids, importance of particle size and particle size determination techniques in determining the particle size of various systems
18PH2115T	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 sterility testing of pharmaceutical products.
		CO4	Understand microbiological standardization of Pharmaceuticals.
18PH2115P	Pharmaceutical Microbiology (Practical)	CO1	Study of different equipments used in experimental microbiology, to perform the preparation of culture media and sterilization of glassware.
		CO2	Applying the knowledge of sterilization techniques and isolation of Pure Cultures
		CO3	Apply the staining techniques of bacteria, demonstration of bacterial motility by hanging drop technique.
		CO4	Perform the microbiological assays of antibiotics, sterility testing of pharmaceuticals, biochemical tests of microorganisms.
18PH2116T	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


G.S.N. Chelva



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

			equipment's involved in filtration and centrifugation
18PH2116P	Pharmaceutical Engineering (Practical)	CO1	To know various unit operations used in pharmaceutical industries.
		CO2	To understand the material handling techniques.
		CO3	Understand various processes involved in pharmaceutical manufacturing process.
		CO4	Apply knowledge on operation of pharmaceutical manufacturing equipment
18UC2103	Professional Communication skills (Practical)	CO1	Able to spot the common grammatical errors related to Sentence Structure, Preposition, Concord, Relative and Conditional Clauses, and Parallel Structures. The learner should be efficient to construct a context-determined text in addition to learning Technical Writing Skills. One should be enabled to use English Language efficiently in the written medium to communicate Personal as well as Professional.
		CO2	Able to read, understand, and interpret a text intrinsically as well as extrinsically. The learner can browse a text quickly to come-up with a gist and personal interpretation. One is able to create a healthy work-environment and prove to be an asset or one of the most reliable resources to the Organization. As a professional, one is mature to bridge the gulf between the existing behavior/ lifestyle and the expected corporate behaviour cum lifestyle.
		CO3	Apply the concepts of Time and Work, the students will be able to solve the questions related to Men-Time-Work, problems based on wages, pipes and cisterns. Apply the concepts of Time and Distance and solve the problems, related to average speed, relative speed, problems based on trains, boats, circular tracks, races and games.
		CO4	Apply Venn diagrams to the given statements to find out whether the given conclusions can be deduced from the given statements. Apply the logical implications and also the negations of various connectives to find the solutions. Analyze the given data and representing the data in the form of Venn Diagrams to find relations between any given set of elements.
18PH2217T	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.
18PH2218T	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

G. S. N. T. O. P. S.


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

			cholinergic drugs
		CO4	Understand the chemistry, metabolic pathways, structure
18PH2218P	Medicinal Chemistry I (Practical)	CO1	Preparation of drugs and drug intermediates.
		CO2	Assay of drugs and knowing how to determine the Partition coefficient of any two drugs.
		CO3	Preparation of drugs and drug intermediates
		CO4	Assay of drugs and knowing how to determine the Partition coefficient of any two drugs.
18PH2219T	Physical Pharmaceutics II (Theory)	CO1	Understand the principles of physical chemistry in pharmaceutical technology
		CO2	Understand various physicochemical properties of drug molecules in the designing the dosage forms
		CO3	Understand the use of physicochemical properties in the formulation development and evaluation of dosage forms.
		CO4	Understand the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
18PH2219P	Physical Pharmaceutics II (Practical)	CO1	Understand the principles of physical chemistry in pharmaceutical technology
		CO2	Understand various physicochemical properties of drug molecules in the designing the dosage form
		CO3	Understand the use of physicochemical properties in the formulation development and evaluation of dosage forms.
		CO4	Understand the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
18PH2220T	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
18PH2220P	Pharmacology I (Practical)	CO1	Application of basic principles of pharmacology
		CO2	Application of common laboratory techniques
		CO3	Examining drugs using pharmacological equipments (InSilco)
		CO4	Analyzing the effect of drugs on stereotypic and catatonic activity
18PH2221T	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	Know about the primary metabolites and marine source of drugs

G.S.N. Chene



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

18PH2221P	Pharmacognosy and Phytochemistry I (Practical)	CO1	Physical evaluation of crude drugs
		CO2	Microscopical evaluation of crude drugs
		CO3	Morphological evaluation of Crude Drugs
		CO4	Chemical evaluation of Crude Drugs
18UC2204	Aptitude builder I (Practical)	CO1	Apply the concept of Critical Reading and Analytical Reading and comprehend the key ideas and gist of a passage. Understand the importance of the presentation skills, analyze the given topic, apply various strategies and the principles of grammar in written expression.
		CO2	Apply the concepts of grammar, various strategies and the usage of formal language in written expression. By using synonyms rewrite the same text in the same format and meaning. Write the gist of the given text.
		CO3	Apply the concepts of Numbers to solve the problems related to divisibility rules, problems based on Unit's digit, Remainders, Successive Division, Prime Factorization, LCM & HCF problems. Apply the concepts of Averages & Alligations, students will be able to solve the problems related to Averages as well as problems based on Mixtures.
		CO4	Apply the various concepts of cubes to find out how to cut a cube to get the maximum number of smaller identical pieces, how to minimize the number of cuts required to cut a cube into the given number of smaller identical pieces, how to count the number of smaller cubes which satisfy the given painting scheme. Apply the principles of binary logic to solve problems involving truth-tellers, liars and alternators. Analyze the given data to form an ordered arrangement from an unorganized raw data.
18PH3122T	Medicinal Chemistry II (Theory)	CO1	Understanding the nomenclature, chemistry, metabolism, structure-activity relationship, mechanism of action, synthesis (few drugs) and uses of antihistamine and antineoplastic drugs
		CO2	Understanding the nomenclature, chemistry, metabolism, structure-activity relationship, mechanism of action, synthesis (few drugs) and uses of anti-anginal, anti-hypertensive 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
18PHJ3123T	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


G.S.W. Odera



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


			parenterals and ophthalmic products
		CO4	Apply the formulation, preparation and evaluation of cosmetics and aerosols. A note on packaging materials for pharmaceutical products
18PH3123P	Industrial Pharmacy I (Practical)	CO1	Applying the Preformulation studies on paracetamol/aspirin/or any other drug
		CO2	Applying the preparation and evaluation of capsules and coated tablets.
		CO3	Analysing the preparation and evaluation of injections
		CO4	Analysing the evaluation of cream
18PH3124T	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
18PH3124P	Pharmacology II (Practical)	CO1	Analyzing the pharmacological activity of drugs on Cardiac and Renal system
		CO2	Analysing dose responses on isolated tissues (Insilco
		CO3	Examining the potency of drugs by Bioassays
		CO4	Analysing the effect of drugs on analgesic and inflammation
18PH3125T	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.
18PH3125P	Pharmacognosy and Phytochemistry II (Practical)	CO1	Identification of phytoconstituents in the crude drug by chemical tests
		CO2	Application of Pharmacognostical study of crude drugs
		CO3	Isolation of phytoconstituents from the crude drugs
		CO4	Detection of Phytoconstituents by chromatographic techniques
18PH3126T	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

G.S.W.K. Das


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


			pharmaceutical practice
18UC3105	Aptitude builder II (Practical)	CO1	To enhance the verbal aptitude and language comprehension of the students.
		CO2	To improve aptitude, problem solving skills and reasoning ability of the students
		CO3	To improve aptitude, problem solving skills and reasoning ability of the students
		CO4	To understand the Number and Letter Series, Number and Letter Analogy, Coding and decoding, Odd man out, Selections
18PH3227T	Medicinal Chemistry III (Theory)	CO1	Understand the importance of drug design and different techniques of drug design.
		CO2	Understand the chemistry of drugs with respect to their biological activity.
		CO3	Know the metabolism, adverse effects & therapeutic value of drugs.
		CO4	Know the importance of SAR of drugs.
18PH3227P	Medicinal Chemistry III (Practical)	CO1	Perform synthesis of drugs and intermediates
		CO2	Performing Assay of drugs
		CO3	Preparation of medicinally important compounds
		CO4	Analyzing the structures using Chem draw
18PH3228T	Pharmacology III (Theory)	CO1	Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
		CO2	Comprehend the principles of toxicology and treatment of various poisonings
		CO3	Appreciate correlation of pharmacology with related medical sciences
		CO4	Applying the concepts of pharmacodynamics of medicinal agents
18PH3228P	Pharmacology III (Practical)	CO1	Demonstration of various Insilco experiments
		CO2	Understanding various pharmacokinetic calculations
		CO3	Analysing Pharmacological effects
		CO4	Application of biostatistics in experimental pharmacology
18PH3229T	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

G. S. A. T. Rao


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

18PH3229P	Herbal Drug Technology (Practical)	CO1	Test for preliminary phytochemical screening
		CO2	Determination of phytochemical constituents
		CO3	Evaluation of natural origins
		CO4	Application of herbal products in cosmetics
18PH3230T	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.
18PH3231T	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 Importance of Monoclonal antibodies in Industries
		CO4	Appreciate the use of microorganisms in fermentation
18PH3232T	Quality Assurance (Theory)	CO1	Understand the importance of quality assurance in Production of quality pharmaceutical production industry
		CO2	Understand the importance of good manufacturing Practices in a pharmaceutical industry
		CO3	Understand the importance of good laboratory practices in a pharmaceutical industry
		CO4	Applying the concepts of documentation and validation
18PH3206P	Campus to Hospitality / Industry (Practical)	CO1	Applying basic concepts of Presentation skills to analyze issues, arguments and some aspects of corporate communication.
		CO2	Applying the concepts of corporate etiquette and Personal Grooming.
		CO3	Apply the concepts of Listening skills, vocabulary and team working
		CO4	Understanding the importance of changing attitude
18PH4133T	Instrumental Method of Analysis (Theory)	CO1	Know about various instruments and standard operating procedures
		CO2	Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis
		CO3	Understand the chromatographic separation and analysis of drugs.
		CO4	Understand the principle and application of advanced analytical instruments.
18PH4133P	Instrumental Method of Analysis (Practical)	CO1	Understanding the concept, applying and analyzing the samples under UV, Colorimetry, Fluorimetry
		CO2	Understanding the concept, applying and analyzing the samples by using Flame photometry, Nepheloturbidometry

G.S.W. 10/10/20


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

		CO3	Understanding, applying the concept by analyzing the samples for separation affinities by paper chromatography, thin layer chromatography, column chromatography
		CO4	Understanding the working, analyzing the concept by separation of sample components using HPLC, Gas Chromatography.
18PH4134T	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
18PH4135T	Pharmacy Practice (Theory)	CO1	Understand various drug distribution methods in a hospital
		CO2	Appreciate the pharmacy stores management and inventory control
		CO3	Examining patient drug therapy
		CO4	Application of communication skills in patient counselling
18PH4136T	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 system
		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
18PH4137PS	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
18UC0010	Universal Human Values & Professional Ethics	CO1	Realize the basic aspiration and understanding harmony in the human being
		CO2	Realize the purpose of family and understand about relationship
		CO3	Realize ways to attain harmony in nature
		CO4	Realize the definitiveness of human conduct

G.S.W. / 10/20



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

18PH4133S	Operation of Analytical Instruments	CO1	Explanation of basic principles of analytical instruments used in life science sector. Summarize application of each analytical instrument and Operation of pH meter, conductivity meter, hardness tester as per SOP
		CO2	Operation of analytical weighing balance, Operation of moisture analyser, disintegration tester, loss on drying (LOD) machine, dissolution apparatus, Karl Fisher (KF) apparatus, viscometer, density tester, refractometer, polarimeter, auto titrator, torque tester, leak test apparatus, pycnometer, tensile strength tester, Operation and maintain centrifuge, autoclave, thin layer chromatography (TLC) chamber, hot air oven, muffle furnace
		CO3	Operation and maintain high performance liquid chromatography (HPLC) instrument Operation of infrared Fourier-transform infrared (FT-IR) spectrometer Operation of Ultraviolet and visible (UV-Vis) analyser
		CO4	Operation gas chromatography (GC) instrument Performing calibration and validation of analytical instrument as per SOP and manual Performing maintenance procedure for analytical instruments as per SOP
18PH4238T	Biostatistics And Research Methodology (Theory)	CO1	Graphical representation of a given numerical data through its frequency distribution and also calculation of various measures of location and dispersion
		CO2	Determines the chances of occurrences of an event through various probability distributions and fit a curve by using principle of least squares
		CO3	Apply ANOVA technique to construct Completely randomized design, randomized block design, Latin square design
		CO4	Apply statistical tests for large and small samples to test the hypothesis. and Analyze the variance by using completely randomized, randomized, Latin square designs and also apply queuing models to the real-world problems.
18PH4239T	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.

G.S.W. D. Rao

[Signature]

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

18PH4240ET	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
18PH4241ET	Pharmaceutical Regulatory Science (Theory)	CO1	Know about legal aspects and quality policies for drug manufacturing
		CO2	Know about the process of drug discovery and development
		CO3	Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
		CO4	Know the regulatory approval process and their registration in Indian and international markets
18PH4242ET	Pharmacovigilance (Theory)	CO1	Know about the history, basic terminologies & development of Pharmacovigilance & highlight the importance of monitoring in drug safety
		CO2	Applications of the principles of Medra coding & establishing Pharmacovigilance programme in India & providing criteria for
		CO3	Analyse identified problems and communicate effectively with the regulatory bodies & other stake holders pertaining to the vaccine Pharmacovigilance.
		CO4	Application of ICH Guidelines and clear instructions to follow the practice of Pharmacovigilance in GMP environment.
18PH4243ET	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
18PH4244ET	Computer Aided Drug Design (Theory)	CO1	Design and discovery of lead molecules
		CO2	Application of 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


G.S.W. O. Sero


PRINCIPAL

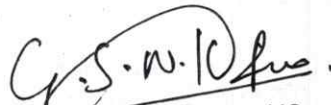
KL College of Pharmacy
Koneru Lakshmaiah Educational Foundation
(Deemed to be University)
Green Feilds, Vaddeswaram-522502
Buntur District, Andhra Pradesh.


18PH4245ET	Cell and Molecular Biology (Theory)	CO1	Summarize cell and molecular biology history
		CO2	Summarize cellular functioning and composition
		CO3	Describe the chemical foundations of cell biology
		CO4	Summarize the DNA properties of cell biology
18PH4246ET	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	Role of herbs in cosmetics
		CO4	Principles of Cosmetic Evaluation
18PH4247ET	Experimental Pharmacology (Theory)	CO1	Appreciate the applications of various commonly
		CO2	Appreciate and demonstrate the various screening methods used in preclinical research
		CO3	Appreciate and demonstrate the importance of biostatistics and research methodology
		CO4	Design and execute a research hypothesis independently
18PH4248 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
18PH4249ET	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.

G.S.N.K. Rao


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

18PH4250PW	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


Academic Professor I/C


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