



K. K. WAGH COLLEGE OF PHARMACY

(B. Pharmacy & D. Pharmacy)

Hirabai Haridas Vidyanagari, Amrutdham, Panchavati, Nashik - 422 003. (Maharashtra) India.

☎ : 0253 - 2221121, 2517003, 2510262 Web : www.pharmacy.kkwagh.edu.in

Email: principal-bpharmacy@kkwagh.edu.in, disp-bpharmacy@kkwagh.edu.in

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COURSE OUTCOMES



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First Year B Pharmacy- Semester-I	
CO ID	Course Outcome
BP101T	Human Anatomy and Physiology-I Theory
BP101T.1	Identify the cellular components of animal cell.
BP101T.2	Discuss the anatomical features of human organ and tissue.
BP101T.3	Discuss various vital physiological parameters of human body.
BP101T.4	Explain the various homeostatic mechanisms in human body.
BP102T	Pharmaceutical Analysis I – Theory
BP102T.1	Understand the basic concepts of Pharmaceutical Analysis including monographs, limit tests and sources of impurities.
BP102T.2	Understand the principles of volumetric and electro chemical analysis.
BP102T.3	Develop analytical skills.
BP102T.4	Explain the various volumetric and electrochemical titrations.
BP102T.5	Illustrate preparation and standardization of solutions, as well as estimation of substances.
BP103T	Pharmaceutics I – Theory
BP103T.1	Explain different components of prescription.
BP103T.2	Describe the history of pharmacy profession and its scope.
BP103T.3	Summarize the basics of different dosage forms.
BP103T.4	Perform pharmaceutical calculations.
BP103T.5	Interpret pharmaceutical incompatibilities.
BP104T	Pharmaceutical Inorganic Chemistry – Theory
BP104T.1	Outline Pharmacopoeial standards and to Know the various sources of impurities in inorganic drugs and pharmaceuticals.
BP104T.2	Describe the principles and methods to determine the impurities by performing various limit tests.
BP104T.3	Understand acid, base, buffers, and various physiological ions and their roles.
BP104T.4	Understand the different classes of inorganic pharmaceuticals and their analysis with applications.
BP104T.5	Summarize radiopharmaceuticals and their applications.
BP105T	Communication skills – Theory
BP105T.1	Define the communication and recall the communication process.
BP105T.2	Summarize the communication theory with example.
BP105T.3	Explain the role of communication for a variety of Context and audiences.
BP105T.4	Demonstrate professional presentations.
BP105T.5	Classify and compare different communication styles.
BP106RBT	Remedial Biology – Theory
BP106RBT.1	Discuss the classification and salient features of five kingdoms of life.
BP106RBT.2	Describe the basic components and anatomical characteristics of plant.
BP106RBT.3	Understand the functional systems of plant.
BP106RBT.4	Describe the various organ systems of the body.



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BP106RMT	Remedial Mathematics – Theory
BP106RMT.1	Understand the definition, properties of laplas transformation.
BP106RMT.2	Explain the concept of limit along with determine the limit of function.
BP106RMT.3	Calculate the matrix multiplication and roots of a square matrix.
BP106RMT.4	Interprete integrals with the help of integration by part and application of logarithm to solve pharmaceutical problems.
BP106RMT.5	Find the derivative of trigonometric functions from first principles.
BP107P	Human Anatomy and Physiology – Practical
BP107P.1	Describe anatomical features of human tissues under microscopical condition.
BP107P.2	Discuss anatomical and physiological characteristics of human bone.
BP107P.3	Perform a haematological test of human subject and interpret the result.
BP107P.4	Record the vital physiological parameters of human subject.
BP108P	Pharmaceutical Analysis I – Practical
BP108P.1	Recognize and handle different glasswares, equipments and chemicals.
BP108P.2	Prepare solutions of different concentrations.
BP108P.3	Perform limit tests for impurities.
BP108P.4	Standardize various titrants.
BP108P.5	Execute estimation of different substances.
BP109P	Pharmaceutics I – Practical
BP109P.1	Memorize the formulations mentioned in the official books.
BP109P.2	Highlight the difference between similar kinds of dosage forms.
BP109P.3	Predict the usage and category of the dosage form.
BP109P.4	Categorize the various types of dosage forms.
BP109P.5	Determine the role of various excipients in the dosage form.
BP110P	Pharmaceutical Inorganic Chemistry – Practical
BP110P.1	Recognize and handle different glasswares, equipments and chemicals.
BP110P.2	Prepare reagents different concentrations.
BP110P.3	Perform limit tests for impurities.
BP110P.4	Prepare and Identify Various Inorganic Compounds.
BP110P.5	Determine Acid neutralising Capacity value, Swelling Index of Bentonite
BP111P	Communication skill– Practical
BP111P.1	Define communication and identify different communication styles.
BP111P.2	Discuss the communication theory with example.
BP111P.3	Apply Verbal and Non Verbal communication techniques in Professional environment.
BP111P.4	Demonstrate ability to interpret texts and observe the rules of effective writing.
BP111P.5	Prepare and present effective presentations.
BP112RBP	Remedial Biology– Practical
BP112RBP.1	Understand the basic concept of permanent slide preparation.
BP112RBP.2	Understand the use of computer model for study of frog.
BP112RBP.3	Microscopic observation and identification of parts of plant and their tissue.
BP112RBP.4	Perform physiological parameters of human subject.



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First Year B Pharmacy- Semester-II	
BP201T	Human Anatomy and Physiology II – Theory
BP201T.1	Describe various organ systems of the human body.
BP201T.2	Discuss anatomy of human organ system.
BP201T.3	Discuss physiology of human organ body.
BP201T.4	Explain the basic concept of genetics.
BP202T	Pharmaceutical Organic Chemistry I – Theory
BP202T.1	Sketch structure from given IUPAC nomenclature and <i>vice-versa</i> .
BP202T.2	Illustrate name the reaction.
BP202T.3	Describe structures and uses of organic compounds.
BP202T.4	Discuss methods of preparations and chemical reactions of organic compounds.
BP202T.5	Explain reactivity/stability of compounds.
BP203T	Biochemistry – Theory
BP203T.1	Describe biomolecules along with their biological roles.
BP203T.2	Discuss about bioenergetics.
BP203T.3	Summarize the metabolism of nutrient molecules in physiological and pathological conditions.
BP203T.4	Discuss the different classes of inorganic pharmaceuticals and their analysis with applications.
BP203T.5	Summarize radiopharmaceuticals and their applications.
BP204T	Pathophysiology – Theory
BP204T.1	List the etiology of the selected disease states.
BP204T.2	Name the signs and symptoms of the diseases.
BP204T.3	Outline the pathogenesis and complications of the diseases.
BP204T.4	Relate the pharmacological treatment of disease or conditions.
BP204T.5	Choose the common laboratory and diagnostic tests.
BP205T	Computer Applications in Pharmacy – Theory
BP205T.1	Know the various types of application of computer in pharmacy.
BP205T.2	Know the various types of databases.
BP205T.3	Know the various application of databases in pharmacy.
BP205T.4	Know web technology.
BP205T.5	Identify role of computers in data analysis in Preclinical development.
BP206T	Environmental sciences – Theory
BP206T.1	Know the different natural sources and their conservation to save the environment.
BP206T.2	Import basic knowledge about the environment and its allied problems.
BP206T.3	Understand basics of environment like ecology, ecosystem, food chain, food web and ecological pyramids.



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BP206T.4	Create the awareness about environmental pollution and measures to minimize it.
BP207P	Human Anatomy and Physiology II –Practical
BP207P.1	Discuss the significance of various anatomical and physiological characteristics of the human body.
BP207P.2	Demonstrate the vital physiological parameters of human.
BP207P.3	Record physiological parameters of human subject and interpret the result.
BP207P.4	Describe family planning devices and pregnancy diagnosis tests.
BP208P	Pharmaceutical Organic Chemistry I– Practical
BP208P.1	Analyse the unknown organic compounds by qualitative analysis technique.
BP208P.2	Determine physical constant of organic compounds.
BP208P.3	Prepare derivatives of organic compounds.
BP208P.4	Construct the molecular models.
BP208P.5	Understand handlings of instrument and glassware's used for experiment.
BP209P	Biochemistry – Practical
BP209P.1	Prepare buffer solutions and measure pH.
BP209P.2	Perform qualitative analysis of carbohydrates
BP209P.3	Perform identification tests for proteins.
BP209P.4	Determine metabolites in blood and serum.
BP209P.5	Perform quantitative analysis of reducing sugars.
BP210P	Computer Applications in Pharmacy – Practical
BP210P.1	Make a list of questionnaires and label wizard using MS Word.
BP210P.2	Retrieve information about drugs.
BP210P.3	Creating (Database, working with queries, mailing labeling wizard invoice table) in MS Access.
BP210P.4	Understand the create HTML Web page.
BP210P.5	Know how to export data and reports to and HTML and XML.



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Second Year B Pharmacy- Semester-III	
BP301T	Pharmaceutical Organic Chemistry II – Theory
BP301T.1	Explain principle & mechanism of different electrophilic aromatic substitution reactions.
BP301T.2	Recall the effect of substituent on acidity and basicity of compounds.
BP301T.3	Describe the different analytical constants along with significance and principle involved in their determination.
BP301T.4	Discuss the Synthesis & reactions of Polynuclear hydrocarbons.
BP301T.5	State the stability of cycloalkanes.
BP302T	Physical Pharmaceutics I – Theory
BP302T.1	Associate solubility and complex phenomenon.
BP302T.2	Recite matter and properties.
BP302T.3	Interpret phenomenon at surface and interfaces.
BP302T.4	Identify the importance of pH and buffers in pharmaceutical and biological systems.
BP302T.5	Apply key physical pharmacy concepts.
BP303T	Pharmaceutical Microbiology – Theory
BP303T.1	Define, identify, Cultivate and preserve microbes of various categories and aware about historical developments.
BP303T.2	Classify and explain mechanism of action and effectiveness of various sterilization processes & their evaluation.
BP303T.3	Write and use various sterility testing methods in pharmaceuticals.
BP303T.4	Test potency of various agents by various assay methods.
BP303T.5	Summarize microbial spoilage and cell culture and its applications.
BP304T	Pharmaceutical Engineering – Theory
BP304T.1	Define various unit operations used in Pharmaceutical industries & laws & theories governing them.
BP304T.2	Illustrate the need, principles & discuss equipment used in unit operations.
BP304T.3	Compare material of construction used in designing of pharmaceutical equipment.
BP304T.4	Develop understanding of construction & working of various equipment.
BP304T.5	List the various preventive methods used for corrosion control in Pharmaceutical industries.
BP305P	Pharmaceutical Organic Chemistry II – Practical
BP305P.1	Purify organic compounds by different purification techniques.
BP305P.2	Determine purity of oil samples.
BP305P.3	Prepare small organic compounds.
BP305P.4	Outline reagent properties, reaction, mechanism involved in synthesis of organic compound.
BP305P.5	Understand handlings of instrument and glassware's used for experiment.



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BP306P	Physical Pharmaceutics I – Practical
BP306P.1	Determine different physicochemical properties.
BP306P.2	Determine percent composition of third component in two component system.
BP306P.3	Perform the study to determine different properties of surfactant.
BP306P.4	Analyse different properties of complexes.
BP306P.5	Calculate the adsorption constants.
BP307P	Pharmaceutical Microbiology – Practical
BP307P.1	Define and identify various instruments and process.
BP307P.2	Summarize methods of identification, cultivation and preservation of various microorganisms.
BP307P.3	Describe the importance and implementation of sterilization.
BP307P.4	Examine various biochemical tests.
BP307P.5	To develop the skills required for maintaining strictly aseptic condition & handling inoculating loop, its sterilization and inoculation procedure.
BP308P	Pharmaceutical Engineering – Practical
BP308P.1	Demonstration of various equipments used in unit operations.
BP308P.2	Explain the various factors affecting various unit operations.
BP308P.3	Analyse the critical parameters of unit operations.
BP308P.4	Determine the parameters influencing unit operations.
BP308P.5	Perform various processes involved in pharmaceutical manufacturing plant.



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Second Year B Pharmacy- Semester-IV	
BP401T	Pharmaceutical Organic Chemistry III– Theory
BP401T.1	Interpret knowledge on stereo chemical aspects of organic compounds and organic reactions
BP401T.2	Enlighten methods of racemic modification and resolution of racemic mixture.
BP401T.3	Memorize the nomenclature of Heterocyclic compounds.
BP401T.4	Explain chemistry of heterocyclic compounds with medicinal importance.
BP401T.5	Describe detailed mechanisms for common naming reactions.
BP402T	Medicinal Chemistry I – Theory
BP402T.1	Summarize history of drug design, development, classification and chemistry of different classes of drugs.
BP402T.2	Discuss structural activity relationship of different classes of agents.
BP402T.3	Recognize therapeutic uses, adverse effects and recent developments of some agents.
BP402T.4	Understand receptor interaction, mechanism of action of medicinal compounds.
BP402T.5	Write synthetic route of APIs.
BP403T	Physical Pharmaceutics II – Theory
BP403T.1	Comprehend the terms and concepts related to particle.
BP403T.2	Relate the insights into various areas of dispersion.
BP403T.3	Classifying and predicting rheological systems.
BP403T.4	Know the principles of chemical kinetics.
BP403T.5	Demonstrate use of physicochemical properties in formulation.
BP404T	Pharmacology I – Theory
BP404T.1	Understand basic pharmacology, nature & sources of drugs & various routes for drug administration.
BP404T.2	Explain the concept of pharmacokinetics and pharmacodynamics.
BP404T.3	Understand receptors, drug-receptor interactions, adverse drug reactions, drug discovery and development process.
BP404T.4	Explain basic pharmacological actions of different categories of drugs acting on autonomic and central nervous system.
BP405T	Pharmacognosy and Phytochemistry I– Theory
BP405T.1	Recall the history, scope and development of pharmacognosy and remember different sources of crude drugs and also classify them accordingly.
BP405T.2	Illustrate on Cultivation, Collection, Processing, Storage and Conservation of Medicinal Plants.
BP405T.3	Summarize the concepts and Principles of Plant Tissue Culture.
BP405T.4	Explain the systematic pharmacognostic study of primary & secondary metabolites, role of Pharmacognosy in allopathy and traditional systems of medicine, marine drugs and teratogens.
BP405T.5	To evaluate the various techniques for the quality herbal drugs.



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BP406P	Medicinal Chemistry I – Practical
BP406P.1	Recall safety measures while working in laboratory.
BP406P.2	Discuss the methods of sample purification in laboratory.
BP406P.3	Outline reagent, reaction, mechanism involved in synthesis of Medicinal compounds.
BP406P.4	Prepare purify some medicinally important compounds.
BP406P.5	Analyze medicinal compounds with different methods.
BP407P	Physical Pharmaceutics II – Practical
BP407P.1	Determine particle size and particle size distribution by different methods.
BP407P.2	Evaluate flow properties of solid materials.
BP407P.3	Compare the effect of suspending agents on sedimentation volume.
BP407P.4	Perform the study to know rheological properties of liquid and semisolid materials.
BP407P.5	Perform the study to determine kinetics of reaction and drug stability.
BP408P	Pharmacology I – Practical
BP408P.1	Obtain knowledge about instruments used in experimental Pharmacology.
BP408P.2	Observe the effects of drugs on animal by simulated techniques.
BP408P.3	Understand the pharmacological actions of different categories of drugs.
BP408P.4	Understand common laboratory animals used and parameters associated with their use in experimental Pharmacology.
BP409P	Pharmacognosy and Phytochemistry I – Practical
BP409P.1	Remember different morphological and microscopical characteristic features of crude drugs.
BP409P.2	Demonstrate camera lucida and diagrams of microscopic objects to scale with camera lucida.
BP409P.3	Evaluate the crude drugs by quantitative evaluation methods.
BP409P.4	Evaluate the crude drugs by physical methods of evaluation.
BP409P.5	Analyse crude drugs by using chemical test.



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Third Year B Pharmacy- Semester-V	
BP501T	Medicinal Chemistry II – Theory
BP501T.1	Recognize history of drug design, development and classification of different classes of drugs.
BP501T.2	Understand the chemistry of drugs with respect to their pharmacological activity.
BP501T.3	Discuss structural activity relationship of different class of drugs.
BP501T.4	Know therapeutic uses, adverse effects and recent developments of some agents.
BP501T.5	Recall and Sketch the chemical synthesis of selected drugs.
BP502T	Industrial Pharmacy-I– Theory
BP502T.1	Understand preformulation considerations in the development of pharmaceutical dosage forms.
BP502T.2	Summarize the formulation aspects of tablet and liquid oral dosage forms and their processing problems.
BP502T.3	Describe the capsule and pellet production with quality control tests.
BP502T.4	Illustrate the formulation and evaluation of various sterile dosage form.
BP502T.5	Explain the formulation and evaluation of cosmetics.
BP503T	Pharmacology II – Theory
BP503T.1	Understand fundamental knowledge on various aspects of drugs acting on cardiovascular system.
BP503T.2	Comprehend the pharmacology of drugs acting on urinary system.
BP503T.3	Describe pharmacology of autacoids.
BP503T.4	Apply the knowledge of drugs acting on endocrine system.
BP503T.5	Illustrate concept of bioassay and applications of bioassay using various prototype compounds.
BP504T	Pharmacognosy and Phytochemistry II– Theory
BP504T.1	Understand metabolic pathways involved in biosynthesis of secondary metabolites and application of biogenetic studies.
BP504T.2	Explain source, chemistry, therapeutic application of various secondary metabolites containing drugs.
BP504T.3	Discuss isolation, identification and analysis of some phytoconstituents.
BP504T.4	Describe methods for industrial production, estimation and utilization of some therapeutically important secondary metabolites.
BP504T.5	Know various modern extraction techniques & application of latest technique for analysis of phytoconstituents.
BP505T	Pharmaceutical Jurisprudence – Theory
BP505T.1	Understand the Drug and Cosmetics Act 1940.
BP505T.2	Illustrate regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.
BP505T.3	Explain various Indian pharmaceutical Acts and Laws.
BP505T.4	Summarize the Pharmaceutical legislations, the concept of Intellectual property rights and Right to information act and their implications in the development and marketing of pharmaceuticals.
BP505T.5	Apply code of ethics during the pharmaceutical practice.



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BP506P	Industrial Pharmacy-I – Practical
BP506P.1	Formulate and evaluate Cosmetics
BP506P.2	Determine the preformulation characteristics of drug substance/ excipients.
BP506P.3	Formulate and evaluate the solid oral dosage form.
BP506P.4	Evaluate of Packaging material of parenteral dosage form.
BP506P.5	Formulate and evaluate the parenteral dosage form.
BP507P	Pharmacology II – Practical
BP507P.1	Get in-depth knowledge about in-vitro pharmacology.
BP507P.2	Demonstrate the various receptor actions using isolated tissue preparation.
BP507P.3	Understand concept of bioassay and isolation of different organs/tissues from the laboratory animals by simulated experiments.
BP507P.4	Demonstrate effect of some drugs using preclinical screening methods.
BP508P	Pharmacognosy and Phytochemistry II – Practical
BP508P.1	Demonstrate isolation of phytoconstituents from crude drugs.
BP508P.2	Construct isolation, evaluation of volatile oil water distillation method.
BP508P.3	Identify unorganized crude drugs by chemical tests
BP508P.4	Evaluate crude drugs by using morphological and microscopical characteristics
BP508P.5	Analyze phytoconstituents by Paper and Thin Layer Chromatography of phytoconstituents/extracts.



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Third Year B Pharmacy- Semester-VI	
BP601T	Medicinal Chemistry III – Theory
BP601T.1	Recognize history of drug design, development, classification and chemistry of different classes of chemotherapeutic agents.
BP601T.2	Illustrate the structural activity relationship of chemotherapeutic agents.
BP601T.3	Know therapeutic uses, adverse effects and recent developments of chemotherapeutic agents.
BP601T.4	Recall and Sketch the chemical synthesis of selected drugs.
BP601T.5	Explain the importance of drug design and different techniques of drug design.
BP602T	Pharmacology III – Theory
BP602T.1	Discuss the Pharmacology of drugs acting on various Respiratory and Gastrointestinal system.
BP602T.2	Explain the Pharmacology of various drugs used in infections disease.
BP602T.3	Explain role of Immuno-pharmacology
BP602T.4	Comprehend the principles of toxicology and chronopharmacology.
BP603T	Herbal Drug Technology – Theory
BP603T.1	Recall the WHO and ICH guidelines for evaluation of herbal drugs
BP603T.2	Understand raw material as source of herbal drugs from cultivation to herbal drug product.
BP603T.3	Discuss the herbal cosmetics, natural sweeteners, nutraceuticals.
BP603T.4	Appreciate patenting of herbal drugs and regulatory bodies for ASU.
BP603T.5	Comprehend herbal industry and GMP of Indian system of medicine.
BP604T	Biopharmaceutics and Pharmacokinetics – Theory
BP604T.1	Demonstrate the basic concepts in biopharmaceutics and pharmacokinetics and their significance.
BP604T.2	Explain the concepts of bioavailability and bioequivalence of drug products and their significance.
BP604T.3	Restate various pharmacokinetic parameters, their significance & applications.
BP604T.4	Summarize the fundamentals related to the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
BP604T.5	Interpret the fundamentals of nonlinear pharmacokinetics.
BP605T	Pharmaceutical Biotechnology – Theory
BP605T.1	Understand various techniques used in modern biotechnology.
BP605T.2	Summarize the aspects of genetic engineering in relation to production of pharmaceuticals.
BP605T.3	Discuss the significance of immunology, monoclonal antibodies and vaccines production in Pharmaceutical Sciences.
BP605T.4	Explain the use of microorganisms in fermentation technology.
BP605T.5	Illustrate importance of biotechnological methods in pharmacy.



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(B. Pharmacy & D. Pharmacy)

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BP606T	Quality Assurance –Theory
BP606T.1	Explain the Quality management concepts including regulatory guidelines.
BP606T.2	Summarize ICH guidelines and quality by design concepts, cGMP aspects in a pharmaceutical industry.
BP606T.3	Illustrate Quality control tests and good laboratory practices.
BP606T.4	Apply the knowledge regarding pharmaceutical complaints and document maintenance.
BP606T.5	Demonstrate calibration, validation and good warehousing practices.
BP607P	Medicinal chemistry III – Practical
BP607P.1	Recall the basic concepts of purification and physical constant determination.
BP607P.2	Understand the principal and reaction mechanism of every experiment.
BP607P.3	Demonstrate the ChemDraw / ChemSketch software.
BP607P.4	Sketch the chemical synthesis, structure and reactions of selected drugs.
BP607P.5	Analyse the purity of medicinal compounds.
BP608P	Pharmacology III – Practical
BP608P.1	Dose calculations in Pharmacological experiments.
BP608P.2	Pre-clinical models for estimation of drug activity.
BP608P.3	Clinical Chemistry Analyser OR Biochemistry Analyser study.
BP608P.4	Toxicity studies of drug and chemicals in experimental animals.
BP608P.5	Bio statistical studies in experimental Pharmacology.
BP609P	Herbal Drug Technology – Practical
BP609P.1	Understand raw material as a source of herbal drugs by phytochemical Screening.
BP609P.2	Know the herbal cosmetics and its evaluation as per Pharmacopoeia.
BP609P.3	Know the residual content in traditional preparation.
BP609P.4	Report the various parameters in the designing of monographs.
BP609P.5	Report the procedure to determine multiple parameters.



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Final Year B Pharmacy- Semester-VII	
BP701T	Instrumental Methods of Analysis – Theory
BP701T.1	Describe the fundamentals of UV and Fluorescence spectroscopy.
BP701T.2	Summarize different aspects of infra-red, atomic and scattering spectroscopy.
BP701T.3	Understand basic chromatographic separations and electrophoresis.
BP701T.4	Demonstrate various aspects of High Performance and Gas chromatography.
BP701T.5	Interpret the concepts Ion-exchange, gel and affinity chromatography.
BP702T	Industrial Pharmacy-II – Theory
BP702T.1	Apply pilot plant and scale up of considerations to various pharmaceutical dosage forms.
BP702T.2	Illustrate the process of technology transfer from lab scale to commercial batch.
BP702T.3	Demonstrate the importance of Quality management concepts in Pharmaceutical industry.
BP702T.4	Compare different Laws and Acts that regulate pharmaceutical industry.
BP702T.5	Summarize and compare the approval process and regulatory requirements for drug products.
BP703T	Pharmacy Practice – Theory
BP703T.1	Appraise organization of hospital & hospital pharmacy, drug distribution system in hospitals, hospital formulary.
BP703T.2	Specify importance of adverse drug reactions, clinical laboratory tests & their interpretation, investigational use of drugs.
BP703T.3	Recognize drug distribution system in hospitals, role of hospital pharmacist and their services involved in hospital (viz. TDM, Medication adherence, patient history).
BP703T.4	Comprehend importance and role of pharmacy and therapeutic committee, counselling, drug information services.
BP703T.5	Illustrate role of community pharmacy & its management, drug store management & inventory control, budget preparation.
BP703T.6	Explain role of clinical pharmacy, sale of OTC drugs.
BP704T	Novel Drug Delivery System – Theory
BP704T.1	List various approaches for development of novel drug delivery systems.
BP704T.2	Illustrate the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation.
BP704T.3	Choose alternative routes for delivery of drug in the body.
BP704T.4	Motivate thinking ability for research in the field of advanced drug delivery and innovative approaches for drug delivery.
BP704T.5	Appreciate different novel drug delivery system and describe their advantages, disadvantages, applications and classifications based on design concept with their applications.



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BP705P	Instrumental Methods of Analysis – Practical
BP705P.1	Demonstrate working of various instruments.
BP705P.2	Perform analysis of various drugs by UV-Visible spectroscopy.
BP705P.3	Perform analysis of various drugs by Fluorescence spectroscopy.
BP705P.4	Determine inorganic substances by nepheloturbidimetry.
BP705P.5	Perform TLC and Paper chromatography and determine metals by flame photometry.
BP706PS	Practice School
BP706PS.1	Understand the importance of documentations.
BP706PS.2	Explain various stages of drug discovery.
BP706PS.3	Acquire different methods for Literature review.
BP706PS.4	Handle the various chemicals and instruments as per standard protocols.
BP706PS.5	Acquire knowledge about effective presentation of data.



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Final Year B Pharmacy- Semester-VIII	
BP801T	Biostatistics and Research Methodology
BP801T.1	Describe the importance of statistics and revise basic concepts of measures of central tendency, dispersion and correlation.
BP801T.2	Explain the notations of probability and distributions; sampling and hypothesis and also apply parametric and non-parametric tests to given data.
BP801T.3	Perform linear regression and multiple regression.
BP801T.4	Select approaches for research topic, study design, protocol, presentation of data and report writing.
BP801T.5	Design experiments employing optimization, viz., factorial designs and use of surface response plots.
BP802T	Social and Preventive Pharmacy
BP802T.1	Identify current issues related to health and pharmaceutical problems within the country and worldwide.
BP802T.2	Illustrate alternative ways of solving problems related to health and pharmaceutical issues.
BP802T.3	Explain different National Health Programs coordinated by Government of India to prevent and control different diseases and health issues.
BP802T.4	Develop a critical way of thinking based on current healthcare development.
BP802T.5	Categorize about different community services available in rural, urban and school health.
BP805ET	Pharmacovigilance
BP805ET.1	Recall the importance of drug safety monitoring, History and development of Pharmacovigilance.
BP805ET.2	Understanding International standards for Classification of diseases and drugs, ADR detection and reporting systems.
BP805ET.3	Understand methods to generate safety data during preclinical, clinical and post approval phases of drug's lifecycle.
BP805ET.4	Able to know requirement of ADR reporting in India, ICSR, PSUR, expedited reporting and pharmacovigilance planning.
BP805ET.5	Writing case narratives of Adverse events.
BP809ET	Cosmetic Science
BP809ET.1	Know and explain about cosmetics and cosmeceuticals products. Classify and define Cosmetics and Cosmeceuticals as per Indian and EU regulations Describe the role of cosmetic excipients and building blocks in the formulation of cosmetics.
BP809ET.2	Explain the structure and function of the skin, hair, teeth and gums, bleeding gums, mouth odour, teeth discoloration and sensitive teeth.
BP809ET.3	Describe the fundamentals of sun protection and the formulation of Sunscreens, antiperspirants and deodorants.
BP809ET.4	Evaluate cosmetics for various physico-chemical properties.
BP809ET.5	Design cosmetics and cosmeceuticals that address the problems of dry skin, acne, dermatitis, prickly heat, wrinkles, blemishes, hair fall, Dandruff, body odour.



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BP811ET	Advanced Instrumentation Techniques
BP811ET.1	Summarize the advanced instruments used and its applications in drug analysis.
BP811ET.2	Discuss the principle and methodologies of advance techniques used in drug analysis.
BP811ET.3	Explain the calibration of various analytical instruments
BP811ET.4	Apply the concepts of spectroscopy and chromatography in drug analysis.
BP811ET.5	Compare various hyphenated techniques used in drug analysis.
BP813PW	Project Work
BP813PW.1	Understand some basic concepts of research methodology.
BP813PW.2	Collect, review and assemble the literature defining need and objective of work.
BP813PW.3	Identify problem and define title of the project.
BP813PW.4	Outline and assemble the plan of work.
BP813PW.5	Report and present the findings from project.



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