



Shreeshakti Shaikshanik Sanstha's

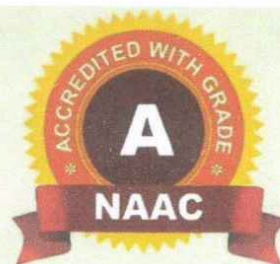
DIVINE COLLEGE OF PHARMACY

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KEY INDICATOR

2.6. STUDENTS PERFORMANCE AND LEARNING OUTCOME

METRIC NO. 2.6.1

**TEACHER AND STUDENTS ARE AWARE OF THE
STATED PROGRAMME AND COURSE
OUTCOME OF THE PROGRAMME OFFERED BY
THE INSTITUTION**

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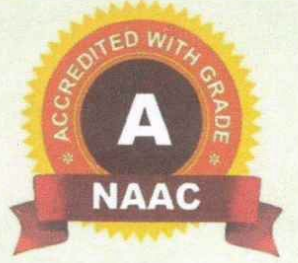
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COURSE OUTCOMES





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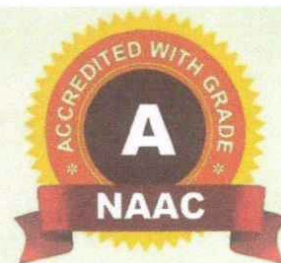
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM I

BP101T Human Anatomy and Physiology I [Theory | Regular]

CO ID. Course Outcome

- BP101T.1 Define the anatomy & physiology of cells, various tissues, organs, and systems with basic anatomical terminologies
- BP101T.2 Illustrate the structure and underline function of skin, bones and joints of human body.
- BP101T.3 Describe the composition, function of blood and lymph, their significance and related disorders and blood coagulation.
- BP101T.4 Relate the physiology of sympathetic, parasympathetic, spinal and cranial nerves and organization of special senses.
- BP101T.5 Adapt the anatomy and physiology of heart and blood vessels and express the regulation of cardiac cycle, blood pressure, ECG.

BP102T Pharmaceutical Analysis I [Theory | Regular]

CO ID. Course Outcome

- BP102T.1 Understand the different techniques of analysis, sources of errors, types of errors, methods of minimizing errors, accuracy and precision in the analysis.
- BP102T.2 Explain the concepts of acid base titrations.
- BP102T.3 State precipitation, complexometric and gravimetric titrations.
- BP102T.4 Explain the concepts of oxidation and reduction.
- BP102T.5 Classify different electrochemical methods of analysis.

BP103T Pharmaceutics I [Theory | Regular]

CO ID. Course Outcome

- BP103T.1 To know the historical background and profession of pharmacy and basics of pharmaceutical dosage forms.
- BP103T.2 To understand the importance of prescription, posology and to solve pharmaceutical calculations and understand the formulation of powders and liquid dosage forms
- BP103T.3 To develop monophasic and biphasic liquid dosage forms.
- BP103T.4 To explain the concepts of suppositories and pharmaceutical incompatibilities.
- BP103T.5 To formulate and evaluate semi solid dosage forms.

BP104T Pharmaceutical Inorganic Chemistry [Theory | Regular]

CO ID. Course Outcome

- BP104T.1 Explain history and use of pharmacopoeia
- BP104T.2 Analyse the source of impurities and methods to determine the impurities in pharmaceuticals
- BP104T.3 Evaluate the medical and pharmaceutical importance of inorganic compounds
- BP104T.4 Recognize the concepts and monographs of inorganic drugs and pharmaceuticals
- BP104T.5 Apply the concept and details of Radiopharmaceuticals

BP105T Communication skills [Theory | Regular]

CO ID. Course Outcome

- BP105T.1 Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation by knowing Communication Skills, Barriers to communication and Perspectives in Communication.
- BP105T.2 To understand Communication effectively (Verbal and Non Verbal) through Elements of Communication and different communication Styles.



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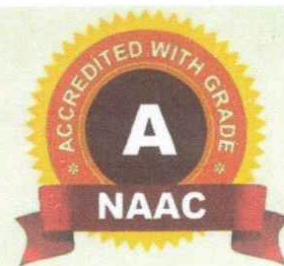
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BP105T.3 To develop communication skills Effectively manage the team as a team player by knowing Basic Listening Skills, Effective Written Communication and Writing Effectively.

BP105T.4 To creat interview skills by developing Interview Skills and Presentations skill

BP105T.5 To develop Leadership qualities and essentials by Group Discussion.

BP107P Human Anatomy and Physiology [Practical | Regular]

CO ID. Course Outcome

BP107P.1 Remember the handling of compound microscope and to memorize various animal tissues.

BP107P.2 Identify axial and appendicular bones of human skeleton.

BP107P.3 Calculate various blood cell count,bleeding time, clotting time and detection of blood group by using different methods.

BP107P.4 Estimate the haemoglobin concentration and erythrocyte sedimentation rate of human blood.

BP107P.5 Measure pulse rate, heart rate & blood pressure.

BP108P Pharmaceutical Analysis I [Practical | Regular]

CO ID. Course Outcome

BP108P.1 Understand significance of analytical chemistry in pharmaceutical sciences.

BP108P.2 Explain basic concepts and principles of acid base titrations.

BP108P.3 Explain different terms, types and basic principles of precipitations, complexometric and redox titrations.

BP108P.4 Estimate analyte concentration by volumetric analysis.

BP108P.5 State principles and procedures used in volumetric and electrochemical titration methods.

BP109P Pharmaceutics I [Practical | Regular]

CO ID. Course Outcome

BP109P.1 state the correct use of various equipment in pharmaceutics laboratory relevant to practical

BP109P.2 Explain formulation, evaluation and labelling of aromatic water, liniments, syrups, semisolids, suppositories, solutions, linctuses, gargles, emulsions, elixirs and powder preparations

BP109P.3 Describe use of ingredients in formulation and category of formulation.

BP109P.4 Perform pharmaceutical calculation to determine evaluation parameter like density, viscosity, specific gravity, carrs index angle repose and hausner ration

BP109P.5 Compare various monophasic, biphasic, semisolid dosage and solid form preparation depending upon their formulation

BP110P Pharmaceutical Inorganic Chemistry [Practical | Regular]

CO ID. Course Outcome

BP110P.1 Understand the methods to determine the impurities in drugs and pharmaceuticals

BP110P.2 Identify the pharmaceutical inorganic compounds

BP110P.3 Evaluate the purity of pharmaceutical inorganic compounds

BP110P.4 Create and Prepare the Inorganic Pharmaceuticals

BP111P Communication skills [Practical | Regular]

CO ID. Course Outcome

BP111P.1 To Understand the behavioral needs for a Pharmacist to function effectively in theareas of pharmaceutical operationa via Meeting People , Asking Questions, Making Friends, Presentation Skills , Pronunciation (Consonant, Vowel Noun).

BP111P.2 To develop Communication skillseffectively (Verbal and Non Verbal)as well to develop Advanced Learning communication skill through Listening Comprehension/ direct and Indirect Speech and Figures of Speech .

BP111P.3 To develop Advanced Learning communication skill Effectively manage the team as a team player as well to develop Advanced Learning communication skill throughEffective Communication and Writing Skills.



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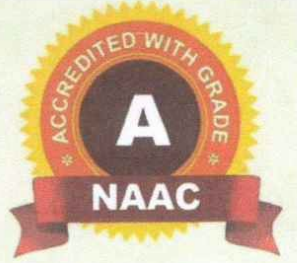
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BP111P4 To Develop interview skills , develop Advanced Learning communication skill through Effective Writing and Interview Handling Skills

BP111P5 To Develop Leadership qualities and essentials,develop Advanced Learning communication skill through E-Mail etiquette and Presentation Skills.



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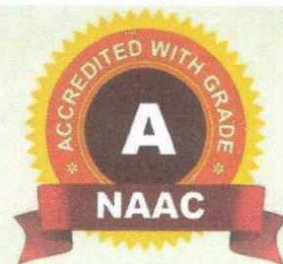
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM II

BP 204T Pathophysiology [Theory | Regular]

CO ID. Course Outcome

BP 204T.1	Understand Concept of basic principles of Cell injury and Adaptation, Basic mechanism involved in the process of inflammation and repair
BP 204T.2	Designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms of Cardiovascular, Respiratory, Renal system diseases
BP 204T.3	focus on the etiology and pathogenesis, signs and symptoms of the selected disease states like Haematological Diseases, Endocrine diseases, Nervous diseases and Gastrointestinal diseases
BP 204T.4	Explain general principles, etiology and pathogenesis, signs and symptoms of Diseases of bones and joints
BP204T.5	Planning and excuting the pathological knowledge of Infectious diseases such as Tuberculosis, Leprosy, Malaria, Dengue, Meningitis, Typhoid, Urinary tract infections, Sexually transmitted diseases for examples AIDS, Syphilis, Gonorrhoea

BP201T Human Anatomy and Physiology II [Theory | Regular]

CO ID. Course Outcome

BP201T.1	Recall organization of nervous system with structure and functions of central nervous system.
BP201T.2	Identify the role of different GIT secretions & ATP formation and anatomy and physiology of digestive system.
BP201T.3	Outline physiology of respiration & urine formation through respiratory & urinary system.
BP201T.4	Correlate endocrine glands & their hormonal secretions in maintenance of homeostasis.
BP201T.5	Compare anatomy & physiology of male & female reproductive system and understand role of genetics in human body.

BP202T Pharmaceutical Organic Chemistry I [Theory | Regular]

CO ID. Course Outcome

BP202T.1	Explain basic principles of organic chemistry like hybridization orbitals, types of bonds, bond fission, intermolecular forces, inductive effect, steric effect, electromeric, mesomeric effect and resonance, hyperconjugation, concept of tautomerism.
BP202T.2	Summarise classification, nomenclature of organic compound as well as isomerism organic compound
BP202T.3	Focus on preparation and reaction, reaction of a) alkyl halides* b) alcohols* - qualitative tests, structure and uses of their derivative.
BP202T.4	Illustrate preparation and reaction, reaction of carbonyl compounds* (aldehydes and ketones) like nucleophilic addition, qualitative tests, structure and uses of formaldehyde, paraldehyde, acetone, chloral hydrate, benzaldehyde, vanillin, and cinnamaldehyde
BP202T.5	Explain preparation and reaction, reaction, properties of a) carboxylic acids* b) aliphatic amines* and qualitative tests, structure and uses of their derivative

BP203T Biochemistry [Theory | Regular]

CO ID. Course Outcome

BP203T.1	explain biomolecules and its role in life process
BP203T.2	Understand the process of biological oxidation and bioenergetics.
BP203T.3	understand the metabolism of nutrient molecules in physiological and pathological conditions
BP203T.4	Classify genetic organization of mammalian genome and functions of DNA in the synthesis of RNA and protein
BP203T.5	Differentiate the catalytic role of enzymes and importance of enzyme in biochemical process

BP205T Computer Applications in Pharmacy [Theory | Regular]



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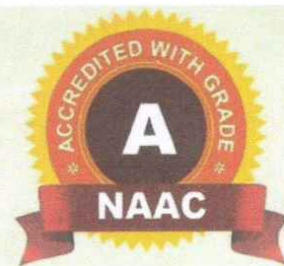
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CO ID.	Course Outcome
BP205T.1	recognize the various types of Number system and application of computers in pharmacy.
BP205T.2	Understand concept of information system and software and its analysis
BP205T.3	summarize the various applications of databases in pharmacy.
BP205T.4	Analyzing the concept of Bioinformatics to understand biological information using computer and statistical technique
BP205T.5	carry out and analyze the computer application in preclinical and clinical studies
BP206T Environmental sciences [Theory Regular]	
CO ID.	Course Outcome
BP206T.1	Understand basic of environments like ecology, ecosystem food chain, food web, and ecological pyramid.
BP206T.2	know the different natural sources and their conservation to save the environment.
BP206T.3	Acquire skill to help the concerned individuals in identifying and solving environmental science.
BP206T.4	Understand the different factors of environmental pollution and measures to minimize it.
BP206T.5	Motivate learner to participate in environment protection and environment improvement.
BP207P Human Anatomy and Physiology II [Practical Regular]	
CO ID.	Course Outcome
BP207P.1	Differentiate the gross morphology, structure and functions of nervous, endocrine, cardiovascular, respiratory, urinary and reproductive systems using charts and models
BP207P.2	Determine the hematological tests like blood cell counts, platelets count, differential leukocyte count and arneth count
BP207P.3	Demonstration of experiments like neurological reflex, olfaction, gustation reflex and visual activity.
BP207P.4	Measure body temperature and basal mass index
BP207P.5	Describe the construction and working of Spirometer for the measurement of lung volume and capacities and study of various family planning devices.
BP208P Pharmaceutical Organic Chemistry I [Practical Regular]	
CO ID.	Course Outcome
BP208P.1	Focus on safety measures in laboratory.
BP208P.2	To generalise basic laboratory techniques like calibration of thermometer, melting point, boiling point, distillation, and crystallization.
BP208P.3	To Summarise systematic qualitative analysis of unknown organic compounds by applying basic knowledge judgment through preliminary test, detection of elements, detection of elements, melting point/boiling point.
BP208P.4	To discuss principle, basics of reaction and mechanism along with preparation of suitable solid derivatives from starting material.
BP208P.5	To study stereochemistry of organic through molecular models along with orientation of structures containing various functional groups.
BP209P Biochemistry [Practical Regular]	
CO ID.	Course Outcome
BP209P.1	Identify proteins, amino acids and carbohydrates by various qualitative as well as quantitative chemical tests.
BP209P.2	Separate, identify and characterize proteins from various samples like egg, milk, etc and understand principle behind the technique.
BP209P.3	Determination of blood Creatinine, Glucose, blood Cholesterol
BP209P.4	Prepare buffer solution and measure pH
BP209P.5	Demonstrate action of salivary amylase on starch
BP210P Computer Applications in Pharmacy [Practical Regular]	
CO ID.	Course Outcome
BP210P.1	Create a HTML web page.





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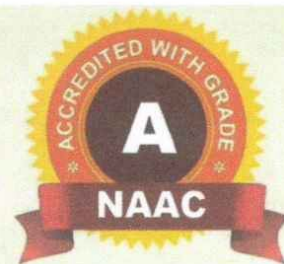
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BP210P.2	Understand various types of database in MS Access to store the patient information.
BP210P.3	Retrieve the information of drug from using various online tool.
BP210P.4	To generate report from patient database.
BP210P.5	Creating and working with queries in MS Access.



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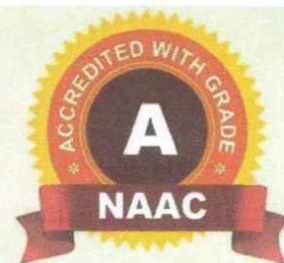
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM III

BP301T Pharmaceutical Organic Chemistry II [Theory | Regular]

CO ID.	Course Outcome
BP301T.1	To write the structure and name of the organic compound
BP301T.2	To write the structure and type of isomerism of the organic compound
BP301T.3	To draw the reaction, mechanism and orientation of reactions
BP301T.4	To know about the reactivity/stability of compounds
BP301T.5	To Prepare small organic compounds

BP302T Physical Pharmaceutics I [Theory | Regular]

CO ID.	Course Outcome
BP302T.1	To understand the phenomenon of solubility, states of matter, surface and interfacial phenomenon, complexation and protein binding, pH and buffers.
BP302T.2	Applications of solubility, surfactant, physicochemical properties of drug molecule, complexation and pH in the formulation of dosage form.
BP302T.3	To elaborate the significance of physicochemical properties of drug molecules like refractive index, optical rotation, dielectric constant, dipole moment, dissociation constant in design and stability of dosage forms.
BP302T.4	Understand the various intermolecular forces involved in the solubility, complex formation, states of matter and surface and interfacial phenomenon.
BP302T.5	To understand and apply in the formulation of dosage form various factors affecting on solubility, surface tension, complexation, and pH.

BP303T Pharmaceutical Microbiology [Theory | Regular]

CO ID.	Course Outcome
BP303.T.1	Understand methods of identification, cultivation and preservation of various microorganisms
BP303.T.2	To understand the importance and implementation of sterilization in pharmaceutical processing and industry
BP303.T.3	Learn sterility testing of pharmaceutical products.
BP303.T.4	Carried out microbiological standardization of Pharmaceuticals.
BP303.T.5	Understand the cell culture technology and its applications in pharmaceutical industries.

BP304 T Pharmaceutical Engineering [Theory | Regular]

CO ID.	Course Outcome
BP304T.1	Explain various unit operations used in pharmaceutical industries.
BP304T.2	Explain the different theories involved in heat transfer.
BP304T.3	Understand various process involved in pharmaceutical manufacturing process and product development.
BP304T.4	Analyze the efficiency of equipment involved in filtration and centrifugation.
BP304T.5	Recognize the significance of plant lay out design for optimum use of available resources.

BP305P Pharmaceutical Organic Chemistry II [Practical | Regular]

CO ID.	Course Outcome
BP305P.1	To know methods of purification of synthesized organic compounds.

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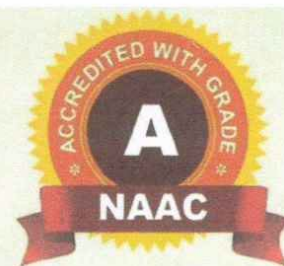
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BP305.P.2 To understand about the separation of organic binary mixture.

BP305.P.3 To analyze the sample of fats and oils.

BP305.P.4 To prepare the small organic compounds.

BP306P Physical Pharmaceutics I [Practical | Regular]

CO ID. Course Outcome

BP306P.1 Understand the concept of solubility, pKa, pH, Critical solution temperature, Partition coefficient, Surface tension, HLB, Refractive index, Critical micella concentration, surface area and complexation practically.

BP306P.2 Determination various physical properties like surface area, refractive index, Critical Micella concentration, Critical solution temperature, HLB, surface tension, partition coefficient, Critical solution temperature.

BP306P.3 Use of instruments like pH meter, Refractometer, Stalagmometer.

BP306P.4 Remember the process of solubility, acid base reaction, micella formation, distribution of drug in different solvents.

BP306P.5 Application of solubility, surface tension, partition coefficient, HLB, complexation and surface area in the formulation of dosage form.

BP307P Pharmaceutical Microbiology [Practical | Regular]

CO ID. Course Outcome

C.BP307.P.1 Understand methods of identification, cultivation and preservation of various microorganisms

C.BP307.P.2 Explain the principle, construction and working of various instruments and perform their operations.

C BP307.P.3 Conduct sterility testing of pharmaceutical products and do Antibiotic Assay of any antibiotic.

C BP307.P.4 Adopt the skills required for maintaining strictly aseptic condition & handling inoculating loop, its sterilization and inoculation procedure.

C BP307.P.5 Understand method of counting of bacteria staining and various isolation method of bacteria to examine motility of microorganism

BP308 P Pharmaceutical Engineering [Practical | Regular]

CO ID. Course Outcome

BP308P.1 Perform experiment related to unit operation.


BP308P.2 Understand material handling techniques.

BP308P.3 Perform various processes involved in pharmaceutical manufacturing.

BP308P.4 Determine different factors affects the rate of filtration.

BP308P.5 Demonstrate different equipment used in manufacturing of pharmaceutical product.




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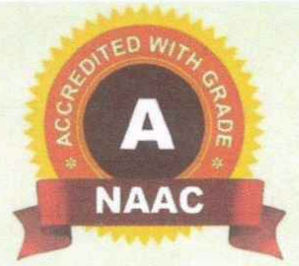
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM IV

BP401T Pharmaceutical Organic Chemistry III [Theory | Regular]

CO ID.	Course Outcome
BP401T.1	Understand various aspect of chiral compound like reactions of chiral molecules, modification, resolution method, asymmetric synthesis and type
BP401T.2	Correlate conformational isomerism in ethane, propene, n-butane, cyclohexane (atropisomerism) in biphenyl compounds conditions for optical activity stereospecific reactions, stereoselective reactions
BP401T.3	Classify the heterocyclic compounds nomenclature and classification of heterocyclic compounds into classes: oxygen, nitrogen and sulphur containing five & six membered rings.
BP401T.4	Explain Basics For Heterocyclic Planar Aromatic As Well As Non Planar Compound Structure, Synthesis, Reaction As Well As Chemistry (Reactivity, Stability, Acidity And Basicity)
BP401T.5	Summaries Basics For Various Name Reactions And Its Synthetic Importance For Various Kind Of Research

BP402T Medicinal Chemistry I [Theory | Regular]

CO ID.	Course Outcome
BP402T.1	To know History and development of medicinal chemistry in relation to Physicochemical properties in relation to biological action like Drug metabolism: Drug metabolism principles - Phase I and Phase II and Factors affecting drug metabolism including stereo chemical aspects.
BP402T.2	To study (ANS) Adrenergic Neurotransmitters Biosynthesis and Metabolism of catecholamine, Adrenergic receptors (Alpha & Beta) and their distribution, Recent developments in categories such as adrenergic drug (sympathomimetic drug), antiadrenergic drug (sympatholytic drug) their classification, mechanism of action, SAR or drug metabolic pathways, adverse effect, synthesis of some related drug.
BP402T.3	To discuss (ANS) Cholinergic neurotransmitters, Biosynthesis and Metabolism of acetylcholine, Cholinergic receptors (Muscarinic & Nicotinic) and their distribution, Recent developments in categories such as cholinergic drug (parasympathomimetic agent), anticholinergic drug (parasympatholytic agents) their classification, mechanism of action, SAR or drug metabolic pathways, adverse effect, synthesis of some related drug.
BP402T.4	To describe Recent developments in (CNS) categories, such as Sedatives and Hypnotic, Antipsychotic, Anticonvulsant, Anaesthetic, their classification, mechanism of action, SAR or drug metabolic pathways, adverse effect, synthesis of some related drug.
BP402T.5	To discuss Recent developments in (CNS) categories, such as centrally acting analgesic agents (Narcotic, non-Narcotic), antianalgesic agents (Narcotic antagonist), Anti-inflammatory agents, their classification, mechanism of action, SAR or drug metabolic pathways, adverse effect, synthesis of some related drug.

BP403T Physical Pharmaceutics II [Theory | Regular]

CO ID.	Course Outcome
BP403T.1	Remember fundamentals and pharmaceutical applications reaction rate kinetics, rheology, micromeritics and colloids.
BP403T.2	Understand the various methods for the determination of surface & interfacial tension of liquids, properties of colloids, properties of powder, order of reactions and flow of fluids.
BP403T.3	Understand the rate of reactions, degradation and stability methods of drugs as well as principle and significance of accelerated stability testing
BP403T.4	Apply the scientific concepts of surface tension, viscosity, micromeritics, kinetics and colloids in connection with preparation, characterization and evaluation of dosage forms.
BP403T.5	Classify different rheological systems, disperse systems, and reaction rates.

BP404T Pharmacology I [Theory | Regular]

CO ID.	Course Outcome
BP404T.1	Understand drug, pharmacology, pharmacokinetics and routes of drug administration

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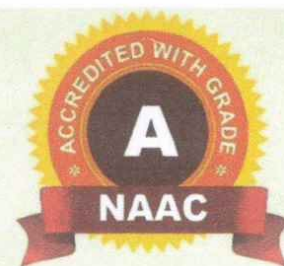
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BP404T.2	Explain Pharmacodynamics- Principles and mechanisms of drug action through Gprotein couples, ion channel, enzyme linked, JAK STAT and nuclear receptors
BP404T.3	Illustrate classification, pharmacology & therapeutic uses of Pharmacology of drugs acting on peripheral nervous system e.g. Sympathomimetics, Para sympathomimetics, Sympatholytic, Para-sympatholytic, Neuromuscular blocking agents and skeletal muscle relaxant.
BP404T.4	Extend pharmacology of drugs acting on central nervous system & their uses in CNS disorders e.g., general anaesthetics, sedative hypnotics, antiepileptic, Alcohol etc.
BP404T.5	Outline the pharmacology of drugs acting on CNS their uses in CNS disorders. Like psychosis, mental illness, Parkinson, CNS stimulants

BP405T Pharmacognosy and Phytochemistry I [Theory | Regular]

CO ID.	Course Outcome
BP405T.1	Explain the history ,scope ,development of pharmacognosy.
BP405T.2	Understand and explain cultivation and collection of drugs of natural origin.
BP405T.3	Explain the historical of plant tissue culture and it's application of plant tissue culture.
BP405T.4	Role of pharmacognosy in various systems of medicine and description about secondary metabolites.
BP405T.5	Study of biological source,chemical nature and use of drugs and study of plant products and primary metabolites.

BP406P Medicinal Chemistry I [Practical | Regular]

CO ID.	Course Outcome
BP406P.1	Focus the reaction with respect to mechanisms involved synthesis of medicinally important compounds.
BP406P.2	Understand reaction with respect to mechanisms involved in synthesis of intermediate medicinally important compounds.
BP406P.3	Discuss reaction with respect to mechanisms involved recrystallization of synthesized medicinally important compounds.
BP406P.4	Explain monitoring of Synthesized medicinally important compounds and purify them using, thin layer Chromatography.
BP406P.5	Demonstrate and understand partition coefficient and ionization constants of drug.

BP407P Physical Pharmaceutics II [Practical | Regular]

CO ID.	Course Outcome
BP407P.1	Understand concept of accelerated stability testing and its application in dosage form stability study
BP407P.2	Evaluate particle size of different powders and evaluation of it on different parameters.
BP407P.3	Understand reaction rate constant of different order reaction
BP407P.4	Evaluate Viscosity of different formulations by different methods.
BP407P.5	Comparison of different methods of particle size evaluation, viscosity measurement, and sedimentation measurement.

BP408P Pharmacology I [Practical | Regular]

CO ID.	Course Outcome
BP408P.1	TO understand the concept of experimental pharmacology, commonaly used instruments in experimental pharmacology and study of laboratory animals and its uses
BP408P.2	Explanation of CPCSEA guidelines, design and planning of blood withdrawal, serum, plasma, anaesthetics and euthanasia used for animal studies.
BP408P.3	Demonstration, determination and detection of hepatic microsomal enzyme inducers, ciliary motility action and effect of drug on rabbit eyes
BP408P.4	Demonstration, determination and detection, calculation of skeletal muscle relaxant activity on rota-rod, locomotor activity on actophotometer and antiepileptic effect of drugs by MES/PTZ method
BP408P.5	Summarizing and monitoring effect of drugs on stereotype/ catatonic, anxiolytic activity in mice and local anaesthetics methods

BP409P Pharmacognosy and Phytochemistry I [Practical | Regular]

CO ID.	Course Outcome
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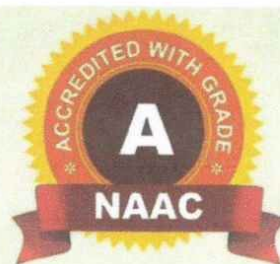
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| BP409.P.1 | Generate micrometric data of Leaf sample & identify the crude drugs. |
| BP409.P.2 | Demonstrate and understanding of Calibration and Applications of Eyepiece micrometer. |
| BP409.P.3 | Examine the size determination of Starch grain and calcium oxalate crystals. |
| BP409.P.4 | Understand meaning & significance of Standardization of crude drug. |



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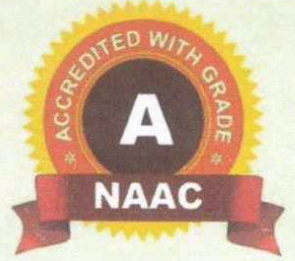
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM V

BP 502 T Industrial Pharmacy-I [Theory | Regular]

CO ID.	Course Outcome
BP502T.1	Determine the concepts of dosage form design & formulation strategies.
BP502T.2	Explain various additives, equipments, manufacturing techniques, types, evaluation in tablet & liquid dosage form
BP502T.3	Outline the capsules, its types, additives, size selection, manufacturing & evaluation, equipments and defects.
BP502T.4	Formulate parenteral, ophthalmic aerosol and cosmetics dosage forms and evaluate them for their quality.
BP502T.5	Study of Packaging materials, legal and official requirements for pharmaceutical products.

BP501T Medicinal Chemistry-II [Theory | Regular]

CO ID.	Course Outcome
BP501T.1	Understand the chemistry of drugs with respect to their pharmacological activity, metabolic pathways, adverse effect, therapeutic value of drugs, SAR of different class of drugs, generations of structurally similar or different, Antihistaminic agents, autacoids related drugs and Its synthesis of selected drugs.
BP501T.2	Summarise the chemistry of drugs with respect to their pharmacological activity, metabolic pathways, adverse effect, therapeutic value of drugs, SAR of different class of drugs, generations of structurally similar or different, and Its synthesis of selected drugs acting on cardiovascular system.
BP501T.3	Describe the chemistry of drugs with respect to their pharmacological activity, metabolic pathways, adverse effect, therapeutic value of drugs, SAR of different class of drugs, generations of structurally similar or different, and Its synthesis of selected drugs acting on cardiovascular system.
BP501T.4	Explain the chemistry of drugs with respect to their pharmacological activity, metabolic pathways, adverse effect, therapeutic value of drugs, SAR of different class of drugs, generations of structurally similar or different, and Its synthesis of selected drugs acting on endocrine system.
BP501T.5	Study the chemistry of drugs with respect to their pharmacological activity, metabolic pathways, adverse effect, therapeutic value of drugs, SAR of different class of drugs, generations of structurally similar or different, Antidiabetic agents and Local anaesthetics related drugs and Its synthesis of selected drugs.

BP503T Pharmacology-II [Theory | Regular]

CO ID.	Course Outcome
BP503T.1	Understand the classification, mechanism of action, pharmacological action, pharmacokinetic, therapeutic uses and contraindications of drug acting on Cardiovascular system and Urinary system.
BP503T.2	clarify the pharmacology, classification of All Autacoid and Non-steroidal anti-inflammatory agents.
BP503T.3	Understand the pharmacotherapy and pharmacological features of common and important drugs used in gout and rheumatoid Arthritis.
BP503T.4	Understand the classification, mechanism of action, pharmacological action, pharmacokinetic, therapeutic uses of drug acting on Endocrine system.
BP503T.5	Recognize the principles and application of bioassay & its type in medical sciences.

BP504T Pharmacognosy and Phytochemistry-II [Theory | Regular]

CO ID.	Course Outcome
BP504T.1	To understand the metabolic pathways in the formation of secondary metabolites and the application of biogenetic studies.
BP504T.2	To understand the bio sources, morphology, composition, chemistry, extraction methods, therapeutic uses, and commercial applications of different crude drugs.
BP504T.3	To carry out isolation and identification of phytoconstituents.



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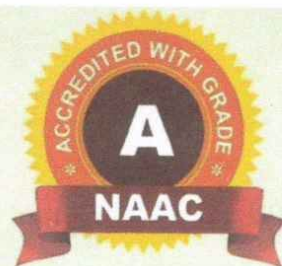
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BP504T.4 To understand the production of Phytoconstituents /herbal formulation.

BP504T.5 To know the modern extraction techniques, characterization, and identification of herbal drugs and phytoconstituents.

BP505T Pharmaceutical Jurisprudence [Theory | Regular]

CO ID. Course Outcome

BP505T.1 To understand the Pharmaceutical Jurisprudence

BP505T.2 To know various Indian pharmaceutical Acts and Laws

BP505T.3 To know about the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals

BP505T.4 To study the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.

BP505T.5 To know about the code of ethics during the pharmaceutical practice

BP506P Industrial Pharmacy-I [Practical | Regular]

CO ID. Course Outcome

BP506P.1 Remember and understand preformulation study of drug and dosage form.

BP506P.2 Perform and evaluate solid,semisolid,sterile formulation.

BP506P.3 Analyze and evaluate capsule,tablet,cream formulation.

BP506P.4 Understand the sterile condition and prepare and evaluate sterile products.

BP506P.5 evaluate packaging material used for pharmaceutical products.

BP507P Pharmacology-II [Practical | Regular]

CO ID. Course Outcome

BP507P.1 Study of physiological salt solutions, drug solution and use in various animal experiments.

BP507P.2 Study of various activities of drugs on various experimental animals.

BP507P.3 Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments.

BP507P.4 Demonstrate the various receptor actions using isolated tissue preparation.

BP507P.5 Calculate the various Pharmacological Experiment and study case report.

BP508P Pharmacognosy and Phytochemistry-II [Practical | Regular]

CO ID. Course Outcome

BP508P.1 To study the crude drug by morphological and microscopical study & identify the powdered crude drugs.


BP508P.2 Demonstration of Isolation and detection of phytoconstituents.

BP508P.3 To separate and analyze phytoconstituents by chromatographic techniques.

BP508P.4 To separate volatile substances and detect by TLC.

BP508P.5 To analyze crude drug by qualitative tests.




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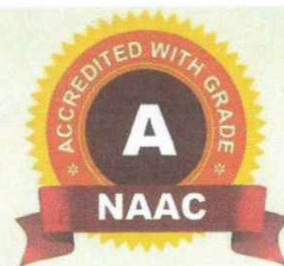
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM VI

BP603T Herbal Drug Technology [Theory | Regular]

CO ID.	Course Outcome
BP603T.1	Explain methods for selection of herbal materials, identification and authentication and method for processing. Describe the techniques for GAP and methods for pest management in medicinal plants and study of ISM in Pharmacognosy.
BP603T.2	Explain benefits, role and natural sources with their chemical composition of nutraceuticals in various ailments & Explain possible side-effects of herbal drugs and possible interaction of herbal drugs.
BP603T.3	Describe about herbs or natural origin drugs as raw materials for preparation of cosmetics & excipients like colorants, sweeteners, binders, diluent, viscosity builders, disintegrates and flavors & perfumes & natural origin drugs as raw materials for preparation of conventional herbal formulations like syrup, mixtures, tablets and Novel dosage forms.
BP603T.4	Explain rules and regulation for assessment of herbal drugs, testing stability and method of patenting natural products & also explain regulation applicable for protection & manufacturing herbals formulation based on traditional medicinal system.
BP603T.5	Describe present Status & future prospects of herbal drug based industry and Describe about the work carried out by industry and institutions of India based on medicinal and aromatic plants and description objectives and various components of GMP for ISM.

BP601T Medicinal Chemistry III [Theory | Regular]

CO ID.	Course Outcome
BP601T.1	To understand the importance of drug design and different techniques of drug design.
BP601T.2	To understand the chemistry of drugs with respect to their biological activity of Antibiotics, Anti-mycobacterial, Antiviral agents, Antifungal agents, Synthetic anti-infective agents and Anti-neoplastic agents.
BP601T.3	To know the metabolism, adverse effects of drugs: Antibiotics, Anti-mycobacterial, Antiviral agents, Antifungal agents, Synthetic anti-infective agents and Anti-neoplastic agents.
BP601T.4	To study the importance of SAR of drugs: Antibiotics, Anti-mycobacterial, Antiviral agents, Antifungal agents, Synthetic anti-infective agents and Anti-neoplastic agents.
BP601T.5	To know the therapeutic value and synthetic route of selected drugs: Antibiotics, Anti-mycobacterial, Antiviral agents, Antifungal agents, Synthetic anti-infective agents and Anti-neoplastic agents.

BP602T Pharmacology III [Theory | Regular]

CO ID.	Course Outcome
BP602T.1	Classify & explain pharmacology of drugs related to Anti -asthmatic, Expectorants and antitussives, in COPD, Nasal decongestants, Respiratory stimulants peptic ulcer, antiemetics, laxative, purgatives & ORS Solution.
BP602T.2	Focus on mechanism of action, kinetics, ADR & uses for different antimicrobial agents like sulphonamides, quinolones and fluoroquinolones, Penicillins, tetracycline, aminoglycosides, chloramphenicol.
BP602T.3	Classify and recall the Antitubercular agents, Antileprotic agent, antifungal agent, Anthelmintics, drug used in malignancy, Urinary tract infections and sexually transmitted diseases, Anti-amoebic agents, antiviral drugs, Immunostimulants/immunosuppressant and Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars along with its mechanism of action.
BP602T.4	To understand the Principle of toxicology and like basic Knowledge of toxicity and treatment of poisoning of different drugs.
BP602T.5	To understand the Principle of chronopharmacology like rhythm and cycles Biological clock and their significance leading to chronotherapy.

BP604T Biopharmaceutics and Pharmacokinetics [Theory | Regular]

CO ID.	Course Outcome
BP604T.1	Remember and Understand the basic concepts in biopharmaceutics and pharmacokinetics absorption, distribution, Elimination and their significance.



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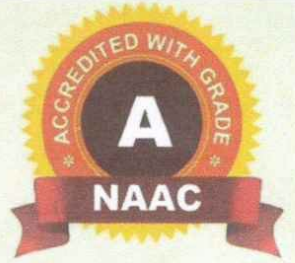
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BP604T.2 Understand and Apply the correct the use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, elimination and BCS classification and dissolution. in-vitro in-vivo correlation.

BP604T.3 Explain and apply, analyse Pharmacokinetics Compartment models, Non compartment models, physiological models understanding of their significance Pharmacokinetics parameters and application.

BP604T.4 Implementing and explaining concepts of bioavailability, bio waivers and bioequivalence of drug products and their significance.

BP604T.5 Calculate, Apply and understand nonlinear pharmacokinetics and dosage regimens for patients based on calculated pharmacokinetic parameters.

BP605T Pharmaceutical Biotechnology [Theory | Regular]

CO ID. Course Outcome

BP605T.1 Understand the importance of Immobilized enzymes in Pharmaceutical Industries.

BP605T.2 Describe applications of genetic engineering in relation to production of pharmaceuticals.

BP605T.3 Distinguish different types of immunity and their importance.

BP605T.4 Demonstrate use of fermenter for production of fermentation products and information about their purification by downstream process.

BP605T.5 Explain the microbial biotransformation and its importance.

BP606T Quality Assurance [Theory | Regular]

CO ID. Course Outcome

BP606T.1 Understand the cGMP aspects in a pharmaceutical industry

BP606T.2 Apply the regulatory guidelines in pharmaceutical industries

BP606T.3 Appreciate the importance of documentation

BP606T.4 Implement Quality management systems in pharmaceutical industry

BP606T.5 Explain the responsibilities of QA & QC departments

BP607P Medicinal chemistry III [Practical | Regular]

CO ID. Course Outcome

BP607P.1 To Synthesize medicinally important drugs and Intermediates.

BP607P.2 To Synthesize medicinally important drugs and Intermediates by microwave assisted synthesis.

BP607P.3 To Know about computational software for structure drawing

BP607P.4 To determine of physicochemical property of drugs by using computational software

BP607P.5 To understand reaction mechanisms involved in synthesis of medicinally important drugs and Intermediates.

BP608P Pharmacology III [Practical | Regular]

CO ID. Course Outcome

BP608P.1 Understanding the in vivo and in vitro experiments, use of software for the study of preclinical experiments

BP608P.2 Understand the concept of acute oral toxicity (LD50), acute skin irritation, acute eye irritation and drug toxicity so that it can get minimize.

BP608P.3 Solve the basics of pharmacokinetic calculation.

BP608P.4 Understanding the brief idea about statistics, its applications in experimental pharmacology and solve problems using various statistical tests like student t test, ANOVA, chi-square test, Wilcoxon Signed Rank test etc.

BP609P Herbal Drug Technology [Practical | Regular]

CO ID. Course Outcome

BP609P.1 Understand raw material as source of herbal drugs from cultivation to herbal drug products.

BP609P.2 Understand preparation and standardization of herbal cosmetics



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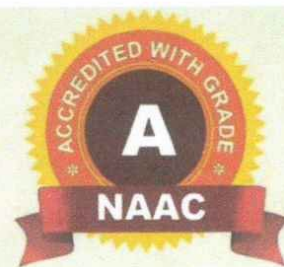
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| BP609P.3 | Know the WHO and ICH guidelines for evaluation of herbal drugs |
| BP609P.4 | Understand the quantitative determination of various phytochemical |
| BP609P.5 | Analyze the herbal drug as per monograph mentioned in official books |



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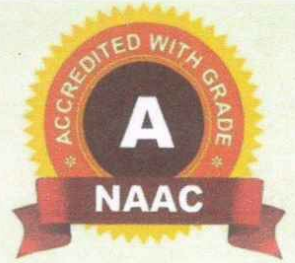
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM VII

Instrumental Methods of Analysis [Practical | Regular]

CO ID.	Course Outcome
BP705P.1	Investigate the pharmaceutical substances by UV-Visible and fluorescence spectroscopy.
BP705P.2	Understand principles, instrumentation, working and applications of UV-Visible spectroscopy, Fluorimetry, Flame Photometry, High performance liquid chromatography & FTIR.
BP705P.3	Separate & identify samples using different chromatographic techniques.
BP705P.4	Develop practical skills for the qualitative and quantitative analysis of drugs & excipients using various instrumentation techniques.
BP705P.5	Understand the professional and safety responsibilities for working in the analysis laboratory.

Practice School [Practical | Elective]

CO ID.	Course Outcome
BP706PS.1	Understand the process of the literature survey
BP706PS.2	Identify and finalize the topic for research activity
BP706PS.3	Present and prepare synopsis after topic selection
BP706PS.4	Perform the research activity and its compilation
BP706PS.5	Present the research work and its publication

BP701T Instrumental Methods of Analysis [Theory | Regular]

CO ID.	Course Outcome
701T.1	Understand the concept of Spectroscopy and its applications
701T.2	Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis
701T.3	Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs.
701T.4	Design methods for performing quantitative & qualitative analysis of drugs using various analytical instruments
701T.5	Understand the role of instruments and techniques in analytical method development and validation

BP702T Industrial Pharmacy II [Theory | Regular]

CO ID.	Course Outcome
BP702T.1	Know the process of pilot plant and scale up of pharmaceutical dosage forms
BP702T.2	Understand and discuss the guidelines of technology transfer from lab scale to commercial batch.
BP702T.3	Remember different Laws and Acts that regulate pharmaceutical industry and describe the organization and responsibilities of national and state licensing authority
BP702T.4	Understand the approval process and regulatory requirements for drug products
BP702T.5	To understand different quality management and certification systems as well as describe the common measure use in quality

BP703T Pharmacy Practice [Theory | Regular]

CO ID.	Course Outcome
BP703T.1	To summarize the knowledge of organization and structure of hospitals, hospital pharmacy, and community pharmacy and identify, categorize, assess and report Adverse Drug Reactions.
BP703T.2	To know various drug distribution methods in a hospital, hospital formulary, therapeutic drug monitoring and obtain patient medication history interview and to apply the knowledge on assessment of drug related problems.





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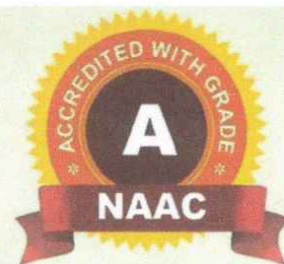
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BP703T.3	To categorize and evaluate the role of hospital pharmacist in pharmacy and therapeutic committee, drug information services, education and training programmes in hospitals and prescribed medication orders and communication skill.
BP703T.4	To monitor drug therapy of patient through medication chart review and clinical review and providing suitable safe medication, patient counselling for improved patient care in the community set up.
BP703T.5	To explain the principles of drug store management and inventory control methods during practice and interpret clinical laboratory tests of specific disease states to provide better patient centered service.
BP704T Novel Drug Delivery System [Theory Regular]	
CO ID.	Course Outcome
BP704T.1	To understand the different systems of drug delivery for controlled release.
BP704T.2	Know the applications of novel drug delivery systems.
BP704T.3	To understand various approaches for the development of novel drug delivery systems.
BP704T.4	To understand the criteria for the selection of drugs and polymers for the development of novel drug delivery systems, their formulation, and evaluation.
BP704T.5	To study the polymers for the development of different novel drug delivery systems.



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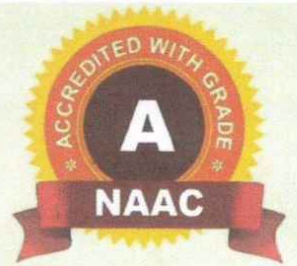
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Subjectwise Course Outcome - [B Pharmacy - 2023-24]

SEM VIII

PROJECT WORK [Practical | Elective]

CO ID.	Course Outcome
BP813PW.1	Understand the process of the literature survey
BP813PW.2	Identify and finalize the topic for research activity
BP813PW.3	Present and prepare synopsis after topic selection
BP813PW.4	Perform the research activity and its compilation
BP813PW.5	Present the research work and its publication

BP801T Biostatistics and Research Methodology [Theory | Regular]

CO ID.	Course Outcome
BP801.T.1	To understand the applications of Biostatics in Pharmacy.
BP801.T.2	Know the various statistical techniques to solve statistical problems
BP801.T.3	Apply statistical knowledge to design and conduct research studies
BP801.T.4	Know the operation of M.S. Excel, SPSS, R and MINITAB

BP802T Social and Preventive Pharmacy [Theory | Regular]

CO ID.	Course Outcome
BP802T .1	Understand Concept of health and disease, Sociology and health, Hygiene and healthDevelop a critical way of thinking based on current healthcare development.
BP802T 2	Explain general principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse.
BP802T 3	Summarize the National health programs, its objectives, functioning and outcome of the HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national programme
BP802T .4	Design Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school

BP805ET Pharmacovigilance [Theory | Regular]

CO ID.	Course Outcome
BP805ET.1	To Understand detection and assessment of new adverse drug reactions, its reporting systems and Explain History, development, National and international scenario of pharmacovigilance and terminologies used in pharmacovigilance.
BP805ET.2	To Know the Drug and disease classification, Drug dictionaries and coding in pharmacovigilance, Information resources in pharmacovigilance and Establishment of pharmacovigilance program in an organization.
BP805ET.3	To Summarize Vaccine pharmacovigilance, Pharmacovigilance methods and Communication in pharmacovigilance.
BP805ET.4	To Monitored Comprehend methods of safety data during pre-clinical, clinical and post approval phases of drugs' lifecycle and ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning.
BP805ET.5	To Explain Pharmacogenomics of adverse drug reaction, CIOMS requirements for ADR reporting.

BP809ET Cosmetic Science [Theory | Regular]



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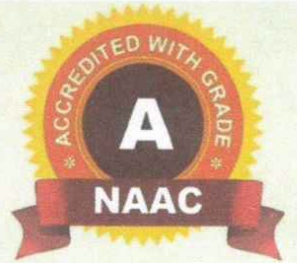
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CO ID.	Course Outcome
BP809ET.1	Classify and define cosmetic and cosmeceuticals as per Indian and EU regulations and to classify various types of cosmetics.
BP809ET.2	Applying and understanding the roles of various excipients used in cosmetics and cosmeceuticals, role of herbs in cosmetics, and their application.
BP809ET.3	Understand structure and function of skin, teeth, gum and hair and problems related to thereof.
BP809ET.4	Understand and apply principles of cosmetic and cosmeceutical evaluation.
BP809ET.5	Design and evaluate cosmetics and cosmeceuticals for sun protection, dry skin, acne, dermatitis, prickly heat, wrinkles, blemishes, hair fall, dandruff, body odour, bleeding gums, mouth odour, teeth discoloration and sensitive teeth.



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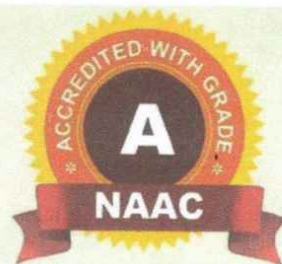
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PROGRAM OUTCOMES





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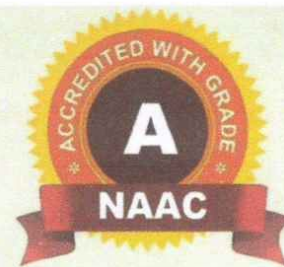
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P04	Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
P05	Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.



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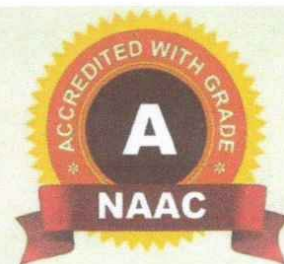
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PO6	Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
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PO9	The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
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PO11	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self- assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.



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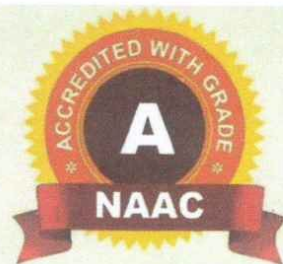
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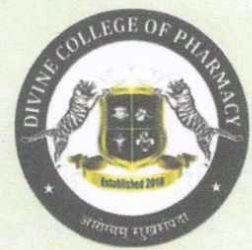


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PROGRAM SPECIFIC OUTCOMES





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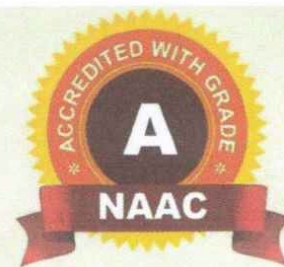
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PS02	To prepare graduate of the program to learn and adapt in a globe of constantly developing trends.
PS03	To prepare the graduate to have foundation in science, formulation technology, synthetic knowledge, Discovery tools as per the requirement of Pharmaceutical sectors.
PS04	To strengthen the professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate pharmaceutical sciences issues to broader social context.
PS05	To streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem.




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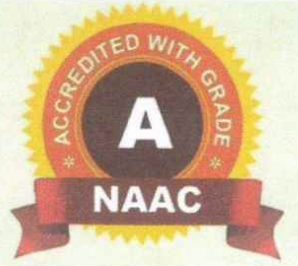
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DISPLAY OF COs, POs AND PSOs ON COLLEGE WEBSITE



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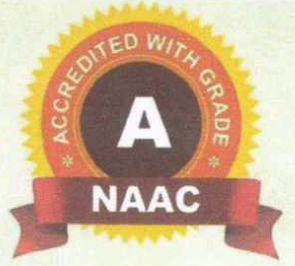
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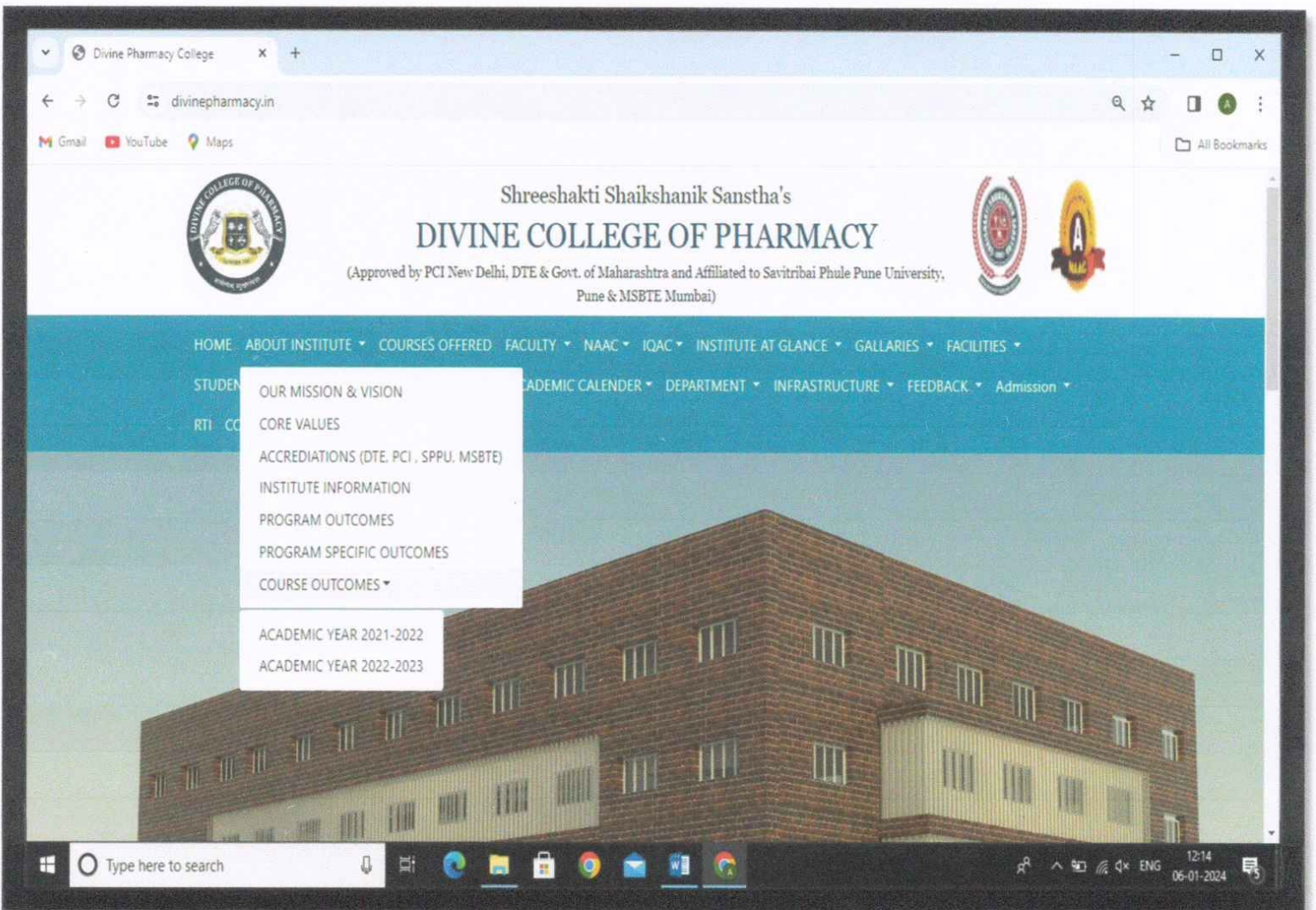
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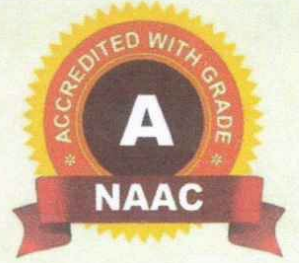
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COURSE FILE CONTAINING COs, POs AND PSOs





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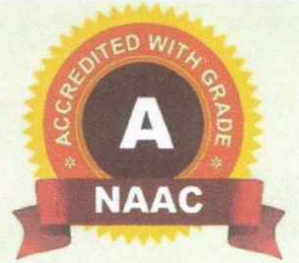
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Course File

Industrial Pharmacy II

(Course Code- BP702T)

(B Pharmacy) SEM VII

Course Incharge

Abdul Kalam

Assistant Professor

2023-24



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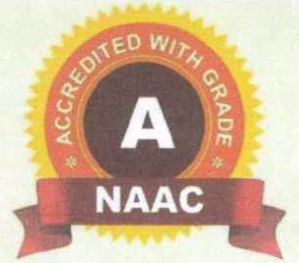
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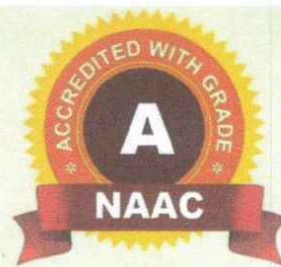
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Divine College of Pharmacy, Satana

B Pharmacy SEM VII 2023-24 BP702T Industrial Pharmacy II (Theory | regular)

Units(Syllabus Report)

Sr. No.	Units	Course Outcome (CO)	Unit Outcome/Learning Outcome (UO/LO)
1	Pilot plant scale up techniques		
1.1	General considerations - including significance of personnel requirements 1	BP702T.1	
1.2	General considerations - including significance of personnel requirements 2	BP702T.1	
1.3	space requirements, raw materials	BP702T.1	
1.4	Pilot plant scale up considerations for solids 1	BP702T.1	
1.5	Pilot plant scale up considerations for solids 2	BP702T.1	
1.6	liquid orals,	BP702T.1	
1.7	semi solids and	BP702T.1	
1.8	relevant documentation,	BP702T.1	
1.9	SUPAC guidelines,	BP702T.1	
1.10	Introduction to platform technology.	BP702T.1	
2	Quality management systems		
2.1	Quality management & Certifications:	BP702T.5	
2.2	Concept of Quality,	BP702T.5	
2.3	Total Quality Management,	BP702T.5	
2.4	Quality by Design (QbD),	BP702T.5	
2.5	Six Sigma concept,	BP702T.5	
2.6	Out of Specifications (OOS),	BP702T.5	
2.7	Change control,	BP702T.5	
2.8	Introduction to ISO 9000 series of quality systems standards, ISO 14000,	BP702T.5	
2.9	NABL, GLP	BP702T.5	
3	Indian Regulatory Requirements		
3.1	Central Drug Standard Control Organization (CDSCO)	BP702T.3, BP702T.4	
3.2	State Licensing Authority: Organization, Responsibilities,	BP702T.3, BP702T.4	
3.3	Certificate of Pharmaceutical Product (CO PP) 1	BP702T.3, BP702T.4	
3.4	Certificate of Pharmaceutical Product (CO PP), 2	BP702T.3, BP702T.4	
3.5	Regulatory requirements and approval procedures for New Drugs 1	BP702T.3, BP702T.4	
3.6	Regulatory requirements and approval procedures for New Drugs 2	BP702T.3, BP702T.4	



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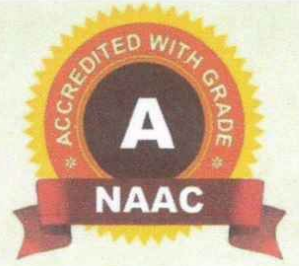
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Divine College of Pharmacy, Satana

B Phar macy SEM VII 2023-24 BP702T Industrial Pharmacy II (Theory | regular)

Units(Syllabus Report)

Sr. No.	Units	Course Outcome (CO)	Unit Outcome/Learning Outcome (UO/LO)
4	Regulatory requirements for drug approval		
4.1	Drug Development Teams,	BP702T.3, BP702T.4	
4.2	Non-Clinical Drug Development, Pharmacology, Drug Metabolism and Toxicology,	BP702T.3, BP702T.4	
4.3	General considerations of Investigational New Drug (IND) Application,	BP702T.3, BP702T.4	
4.4	Investigators Brochure (IB) and New Drug Application (NDA),	BP702T.3, BP702T.4	
4.5	Clinical research / BE studies,	BP702T.3, BP702T.4	
4.6	Clinical Research Protocols,	BP702T.3, BP702T.4	
4.7	Biostatistics in Pharmaceutical Product Development,	BP702T.3, BP702T.4	
4.8	Data Presentation for FDA Submissions, Management of Clinical Studies.	BP702T.3, BP702T.4	
5	Regulatory affairs		
5.1	Introduction, Historical overview of Regulatory Affairs,	BP702T.3, BP702T.4	
5.2	Regulatory authorities,	BP702T.3, BP702T.4	
5.3	Role of Regulatory affairs department, Responsibility of Regulatory Affairs Professionals	BP702T.3, BP702T.4	
6	Technology development and transfer		
6.1	WHO guidelines for Technology Transfer (TT); Terminology	BP702T.1	
6.2	Technology transfer protocol, Quality risk management,	BP702T.2	
6.3	Transfer from R & D to production (Processes, packaging and cleaning),	BP702T.2	
6.4	Granularity of TT Process (API, excipients, finished products, packaging materials)	BP702T.2	
6.5	Documentation, Premises and equipment,	BP702T.2	
6.6	qualification and validation,	BP702T.2	
6.7	quality control, analytical method transfer,	BP702T.2	
6.8	Approved regulatory bodies and agencies,	BP702T.2	
6.9	Commercialization - practical aspects and problems (case studies), TT agencies in India - APCTD, NRDC, TIFAC, BCIL, TBSE / SIDBI;	BP702T.2	
6.10	TT related documentation - confidentiality agreement, licensing, MoUs, legal issues	BP702T.2	



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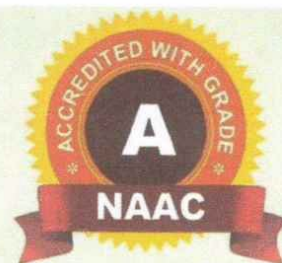
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Divine College of Pharmacy, Satana
Program Outcome

Course Code : BP702T | Course Name : Industrial Pharmacy II (Theory regular)
Academic Year : 2023-24 | Department : B Pharmacy | Sem/Group : SEM VII

Sr. No.	Program ID	Description
1	PO1	Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
2	PO2	Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3	PO3	Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
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6	PO6	Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7	PO7	Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
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14	PSO3	To prepare the graduate to have foundation in science, formulation technology, synthetic knowledge, Discovery tools as per the requirement of Pharmaceutical sectors.
15	PSO4	To strengthen the professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate pharmaceutical sciences issues to broader social context.





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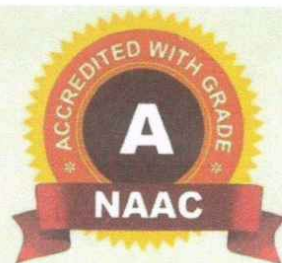
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Divine College of Pharmacy, Satana Program Outcome

Course Code : BP702T | Course Name : Industrial Pharmacy II (Theory regular)
Academic Year : 2023-24 | Department : B Pharmacy | Sem/Group : SEM VII

Sr. No.	Program ID	Description
16	PS05	To streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem.




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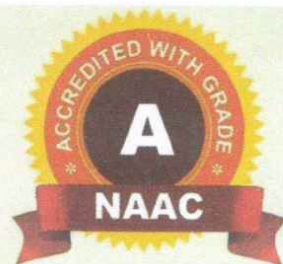
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Divine College of Pharmacy, Satana

B Pharm
acy SEM VII 2023-24 BP702T Industrial Pharmacy II (Theory | regular)

Course Outcome

Sr. No.	CO ID	Course Outcome
1	BP702 T.1	Know the process of pilot plant and scale up of pharmaceutical dosage forms
2	BP702 T.2	Understand and discuss the guidelines of technology transfer from lab scale to commercial batch.
3	BP702 T.3	Remember different Laws and Acts that regulate pharmaceutical industry and describe the organization and responsibilities of national and state licensing authority
4	BP702 T.4	Understand the approval process and regulatory requirements for drug products
5	BP702 T.5	To understand different quality management and certification systems as well as describe the common measure use in quality



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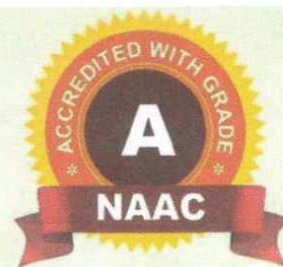
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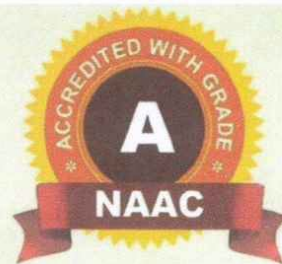
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Pharmacy Program Outcomes

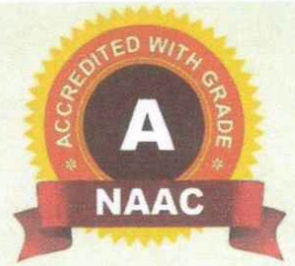
1. **Pharmacy Knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem Analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyse, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
5. **Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
6. **Professional Identity:** Understand, analyse and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
9. **The Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
11. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.



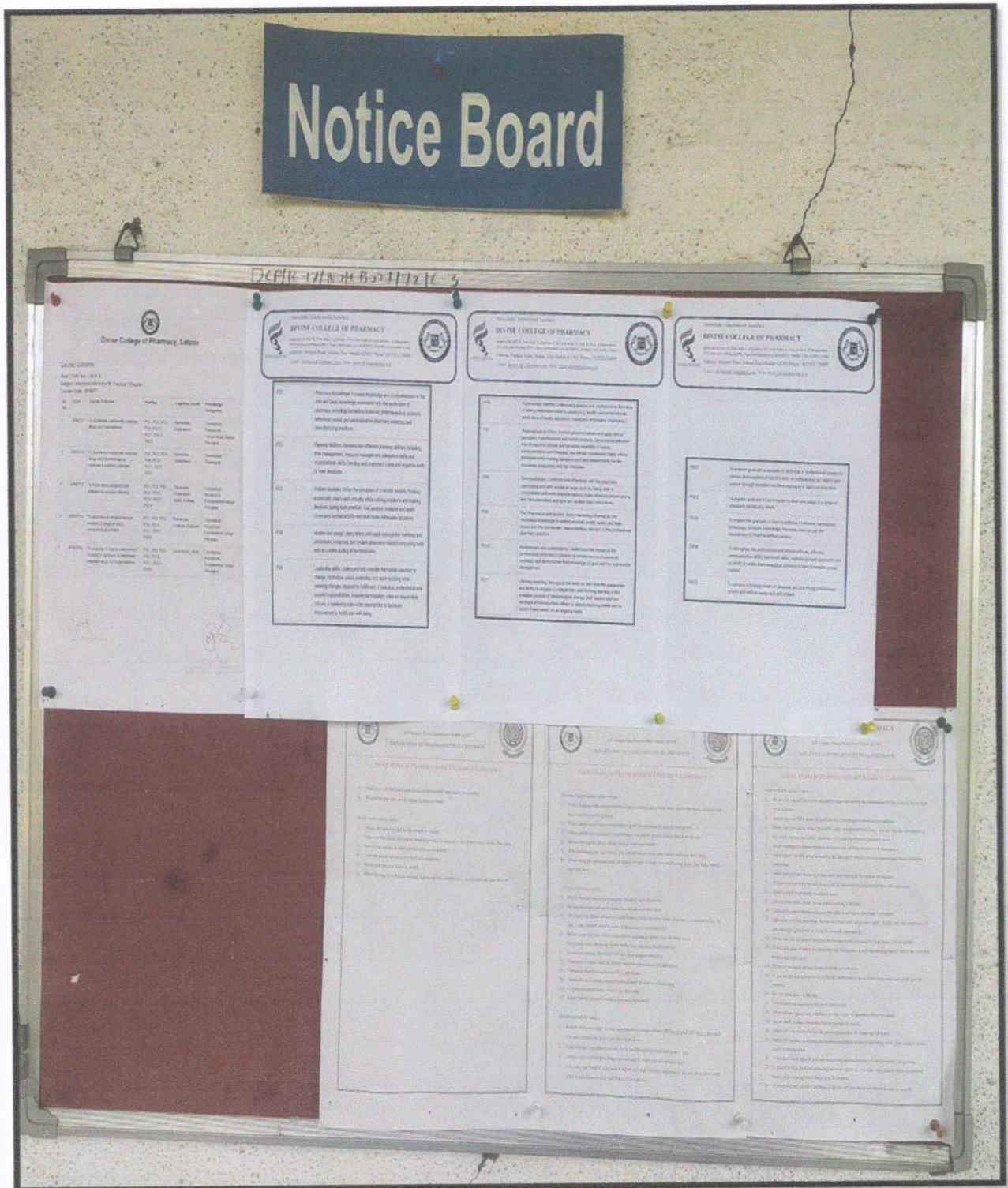


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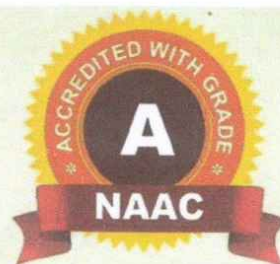
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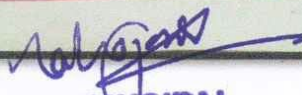
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Program Outcome (B Pharmacy)

ID	Program Outcome
P01	Pharmacy Knowledge: Possess knowledge and comprehension of the core and knowledge associated with the profession of pharmacy, including biomedical sciences; Pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
P02	Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. develop and implement plans and organize work to meet deadlines.
P03	Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
P04	Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
P05	Leadership skills: Understand, and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
P06	Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
P07	Pharmaceutical Ethics: Honour Personal values and apply ethical principles in professional and social contexts. demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
P08	Communication: communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
P09	The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health safety and legal issues and the consequent responsibilities relevant to the professional Pharmacy Practice.
P010	Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
P011	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.
Ps01	To Prepare graduate to success in technical or professional careers in various pharmaceutical industry and/ or institute and / or Health care system through excellent real time exposure to rigorous education.
Ps02	To prepare graduate off the program to learn and adapt in a globe of constantly developing trends.
Ps03	To Prepare the graduate to have foundation in science, formulation technology, synthetic knowledge, Discovery tools as per the requirement of pharmaceutical sectors.
Ps04	To strengthen the professional and ethical attitude, effective communication skills, teamworks skills, multidisciplinary approach, and an ability to relate pharmaceutical science issues to broader social context.
Ps05	To streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem.




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