Sanjivani Rural Education Society's
Sanjivani College of Pharmaceutical Education & Researcl
NBA and NAAC 'A' Accredited, ISO 9001:2015 Certified
At: Sahajanandnagar, Post: Shinganapur- 423603, Tal: Kopargaon, Dist: Ahmednagar (MS)

Approved by AICTE & PCI, New Delhi	Affiliated to Savitribai Phule Pune University, Pune University ID: PU/AN/Pharm/81/2004	Web Site: www.sanjivanipharm.org.in Email- principalbpharm@sanjivani.org.in	Ph: (02423) 222862, 223362, Fax: (02423) 22

COURSE OUTCOMES

Course Outcomes contain complete information about the core subjects of Pharmacy such as Pharmaceutics, Pharmaceutical Chemistry, Pharmacology, and Pharmacognosy.

Program Name: B. Pharmacy

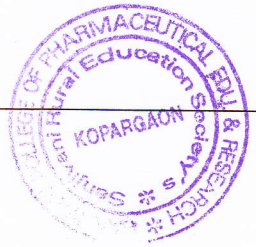
Course Title Course Outcome	Course Title Course Outcome
	First semester
Human Anatomy and Physiology I– Theory	• Basic concepts of human body and cellular level of organization • Tissue levels of organization, structure and function of skin • skeletal systems, bones and joints and their functions • Composition and function of blood and lymphatic system • Classification, structures and functions of peripheral nervous system and special senses including skin • complete cardiovascular system
Pharmaceutical Analysis I – Theory	• The students should be able to understand Fundamentals of analytical chemistry and Pharmaceutical analysis - Definition and scope i. Different techniques of analysis ii. Methods of expressing concentration iii. Primary and Secondary standards. • Clarify basic principles of Pharmaceutical Analysis b) Errors: Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures • Explain basic concepts and principles of aqueous and non-aqueous acid base titrations. • Clarify different terms, types and basic principles and understand the applications of precipitation, Complexometric titration and gravimetric analysis. • Clarify different terms, types and basic principles and Understand the applications of Redox Titrations • Under the basic concepts of Electrochemical methods of analysis, e.g. Conductometry, Potentiometry, Polarography and Refractometry
Pharmaceutics I – Theory	• Know the history of profession of pharmacy • Understand Pharmacy education, role of pharmacist in society • Terminology in dispensing pharmacy and Pharmaceutical calculations • Understand about the different dosage forms in pharmacy and pharmaceutical incompatibilities • Understand the professional way of handling the prescription. • Meet the challenges occur in practicing dispensing pharmacy profession

Pharmaceutical Inorganic Chemistry – Theory	• know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals • Understand the medicinal and pharmaceutical importance of inorganic compounds • Explain the method of preparation, assay, properties, and medicinal uses of acids, bases, buffers, extra and intracellular electrolytes. • Explain the method of preparation, assay, properties, and medicinal uses of dental products, acidifiers, antacids, cathartics, expectorants, emetic and haematinics. • Explain the method of preparation, assay, properties, medicinal uses of antimicrobial agents, astringents, poisons and antidots • Describe the properties, storage condition and application of radiopharmaceuticals.
Communication Skills	• Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation. • Communicate effectively (Verbal and Non Verbal). • Effectively manage the team as a team player. • Develop interview skills. • Develop Leadership qualities and essentials.
Remedial Biology	• Know the classification and salient features of five kingdoms of life. • Understand the basic components of anatomy and physiology of plant. • Know understand the basic components of anatomy and physiology animal with special reference to human.
Remedial Mathematics	• Know the theory of mathematics and their application in Pharmacy. • Solve the different types of problems by applying theory. • Appreciate the important application of mathematics in Pharmacy.
Second Semester	
Human Anatomy and Physiology II – Theory	• organization, classification and properties of nervous system and various components of nervous system and central nervous system • digestive system, formation & role of ATP, creatinine phosphate and BMR • Rrespiratory system • Urinary system • Endocrine system • Reproductive system and genetics
Pharmaceutical Organic Chemistry I – Theory	• Write the structure, name and the type of isomerism of the organic compounds • Write the reaction, name the reaction and orientation of reaction • Account for reactivity/ stability of the compounds • Identify/ confirm the identification of organic compounds • Understand Uses of organic compounds • Thorough understanding of the subject

Biochemistry – Theory	• Know the scope of Biochemistry in Pharmacy and Understand role of biochemical processes in cell metabolism. • Know the enzyme structures, their functions, mechanism for enzymatic activity and applications of enzymes. • Know the general metabolism process of proteins, lipids, carbohydrates and nucleic acids • Understand chemistry, function, classification, biological importance, qualitative tests & applications of various bio-molecules. e.g. proteins, carbohydrates, lipids, nucleic acids and vitamins • Establish the correlation of metabolism, process, steps involved in metabolism of carbohydrates, lipids, protein and nucleic acid • Explain types, their structures, biochemical functions & importance of fat-soluble and water-soluble vitamins.
Pathophysiology – Theory	• Student shall be able to Describe the etiology and pathogenesis of cell injury and inflammation • Student shall be able to Describe the etiology and pathogenesis of diseases related to cardiovascular, respiratory and renal system • Student shall be able to Describe the etiology and pathogenesis of diseases related to hematological and endocrine system • Student shall be able to Describe the etiology and pathogenesis of diseases related to nervous and gastrointestinal system • Student shall be able to Describe the etiology and pathogenesis of diseases related to bones and joints and cancer • Student shall be able to Describe the etiology and pathogenesis of infectious diseases
Computer Applications in Pharmacy – Theory	• Apply the knowledge of MS office, Excel, Power point and Access for pharmaceutical and clinical studies. • To develop programs to calculate simple and arithmetic expressions • Ability to know computer programming, data analysis, calculation and graphing using formulae and function.
Environmental sciences – Theory	• Create the awareness about environmental problems among learners. • Impart basic knowledge about the environment and its allied problems. • Develop an attitude of concern for the environment. • Motivate learner to participate in environment protection and environment improvement. • Acquire skills to help the concerned individuals in identifying and solving environmental problems. • Strive to attain harmony with Nature.
Third Semester	

Pharmaceutical Organic Chemistry II – Theory	• Clarify basic principles and concept of reactions/ rearrangement. • Illuminate relevance & significance of heterocyclic compounds • Know the medicinal uses and other applications of organic compounds and its derivatives. • Extrapolate the knowledge and Applications of reactions/ rearrangement. • Explain the stereochemical aspects of organic compounds and stereo chemical reactions. • Understand the methods of preparation and properties of organic compounds
Physical Pharmaceutics I – Theory	• Understand basic principles related to importance of physical properties and their influence on dosage form designing • Study solubility of drugs, solubility expressions and mechanisms of solute solvent interactions • Learn basics properties of matter and its phases utilized in drug delivery • Understand interfacial and surface properties of various phases in drug delivery • Learn complexes and their importance in pharmaceutical sciences • Understand solutions, types and various properties associated with solutions etc
Pharmaceutical Microbiology – Theory	• Understand methods of identification, cultivation and preservation of various microorganisms. • Importance of sterilization in microbiology and pharmaceutical industry. • Learn sterility testing of pharmaceutical products. • Microbiological standardization of Pharmaceuticals. • Understand the cell culture technology and its applications in pharmaceutical industries.
Pharmaceutical Engineering – Theory	• To understand mechanism of fluid flow and heat transfer and its applications • To understand basic principles involved in various unit operation. • To understand significance of material handling system for optimum use of resources. • To appreciate the various preventive methods used for corrosion control in pharmaceutical industry • To understand material plant construction for better operation. • To perform various unit operations involved in pharmaceutical manufacturing process.
Fourth Semester	
Pharmaceutical Organic Chemistry III– Theory	• Explain and understand the principal behind various qualitative tests • Analyze the given unknown organic compounds having different functional groups. • Able to handle all chemicals carefully. • Explain and understand the principal, reaction mechanism and illustrate applications of every experiment. • Understand, explains and apply various laboratory techniques for the synthesis of organic compounds. • Students should familiar with various techniques of Purification of the synthesized compound using precipitation or recrystallization

Medicinal Chemistry I – Theory	• To impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. • To impart knowledge on structure activity relationships of drugs • To impart knowledge on importance of physicochemical properties and metabolism of drugs • To give knowledge of chemical synthesis of drugs • Understand the chemistry of drugs with respect to their pharmacological activity • Understand the drug metabolic pathways
Physical Pharmaceutics II – Theory	• Relate various physicochemical properties of drug molecules in designing the dosage forms • Able to relate various physicochemical properties of excipient molecules in designing the dosage forms • Able to distinguish the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations • Able to demonstrate the behavior and mechanism of drugs and excipients in the formulation development and evaluation of dosage forms.
Pharmacology I – Theory	• Understand & Explain Introduction to Pharmacology including Pharmacokinetics • Understand & Explain General Pharmacology including Pharmacodynamics • Understand & Explain General Pharmacology including Adverse drug reactions, Drug interactions Drug discovery and clinical evaluation of new drugs • Understand & Explain Pharmacology of drugs acting on Peripheral Nervous System • Understand & Explain Pharmacology of drugs acting on central nervous system including neurohumoral transmission in the C.N.S.- Special emphasis to be given on importance of various neurotransmitters like with GABA, Glutamate, Glycine, Serotonin, Dopamine. • General anaesthetics and pre-anaesthetics Sedatives, Hypnotics and Centrally acting muscle relaxants Anti-epileptics Alcohol and Disulfiram • Understand & Explain Pharmacology of drugs acting on Central Nervous System including Psychopharmacological agents:Antipsychotics, Antidepressants, Antianxiety agents, anti-manics and Hallucinogens Drugs used in Parkinson's disease and Alzheimer's disease CNS stimulants and Nootropics Opioid analgesics and antagonists (including addiction, abuse, tolerance and dependence)



Pharmacognosy and Phytochemistry I– Theory	• To Understand & explain Pharmacognosy and classification of crude drug • To Understand & explain the evaluation techniques for the herbal drugs • To Understand & explain the techniques in the cultivation and production of crude drugs • To understand plant tissue culture technique • To Understand & explain microscopic and morphological evaluation of various plant part • To Understand & explain the crude drugs, their uses and chemical nature
Fifth Semester	
Medicinal Chemistry II – Theory	• Know general aspects of the design & development of drugs including history, Drug Metabolism, CNS Active Drugs, Drugs acting on blood • Know general aspects of the design & development of drugs including history, Drug Metabolism, CNS Active Drugs, Drugs acting on blood • Mechanism of action of Drug Metabolism, CNS Active Drugs, Drugs acting on blood • Adverse effects of Drug Metabolism, CNS Active Drugs, Drugs acting on blood • Therapeutic uses of Drug Metabolism, CNS Active Drugs, Drugs acting on blood • Recent developments in categories such as Drug Metabolism, CNS Active Drugs, Drugs acting on blood
Industrial Pharmacy-I– Theory	• Know the various pharmaceutical dosage forms and their manufacturing techniques. • Know various considerations in development of pharmaceutical dosage forms • Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality.
Pharmacology II – Theory	• The Neurotransmitters involved in the autonomic nervous system, there Synthesis and metabolism. • Various adrenoreceptors, their subtypes and the clinical spectrum of their general and selective agonist and antagonist. • Various cholinoceptor, their subtypes and the clinical spectrum of their general and selective agonist and antagonist. • The agents that stimulate or relax skeletal muscle, including the cholinergic neuromuscular agonists and antagonists as well as the neuromuscular agents acting at noncholinergic sites and Gangloion stimulants and blockers. • Diuretics and antidiuretics, the essential pharmacotherapy and pharmacological features of common and important drugs used in cardiovascular diseases. • The essential pharmacotherapy and pharmacological features of common and important drugs used in respiratory disorders.

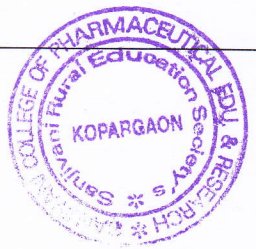
Pharmacognosy and Phytochemistry II– Theory	• Learner should able to To understand the metabolic pathways in formation of secondary metabolites and application of biogenetic studies • Learner should able to To know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents • Learner should able to To understand the production of Phytoconstituents /herbal formulation • Learner should able to To Understand & explain basics of chromatographic techniques for isolation • Learner should able to To Understand & explain basics of non-chromatographic techniques for isolation • Learner should able to To carryout isolation and identification of phytoconstituents
Pharmaceutical Jurisprudence – Theory	• Basic principles, purpose, dimensions, significance and relevance of pharmaceutical laws in India. • Important rules and regulations and procedures made to execute the laws. • Key terminology and their definitions used in acts. • Various administrative bodies, their powers, functions and responsibilities. • Various aspects of import, manufacture, wholesale and retail sale of Drug and cosmetics. • Legal requirements while dealing with drugs and cosmetics in different aspects, offences related to same and panalties.
Sixth Semester	
Medicinal Chemistry III – Theory	• Know the general aspects of history, classification & nomenclature of the antibiotics, anti-infective agents and antineoplastic agents. • Understand the structure activity relationship (SAR) of various classes of the antibiotics, anti-infective agents and antineoplastic agents • Know the mechanism of action and therapeutic uses of the antibiotics, anti-infective agents and antineoplastic agents. • Limitation and adverse effects of the antibiotics, anti-infective agents and antineoplastic agents. • Synthesis and mechanism of reaction involved in the synthesis of important antibiotics, anti-infective agents and antineoplastic agents. • Recent developments and future aspects of the antibiotics, anti-infective agents and antineoplastic agents

Pharmacology III – Theory	• The pharmacology and pharmacotherapy of various general and local anesthetics. • Pharmacology of Alcohol and management of alcoholism, The appropriate drug therapy and management of patients with specific CNS Disorders • The indications, mechanism of action, adverse effects and contraindications for the major classes of drugs used in the treatment of , epilepsy Parkinson's Disease, Migraine and Alzheimer's disease. • Pharmacological features of different classes of Opioids & NSAIDs. • The essential pharmacotherapyof Rheumatoid Arthritis, Osteoarthritis and Gout • Drugs Used in Gastrointestinal tract disorders with Pharmacology of drugs used in the treatment of peptic ulcer and its pharmacotherapy. Pharmacology of Emetics and Anti-Emetics, Pharmacotherapy of Constipation and Diarrhea
Herbal Drug Technology – Theory	• Learners are able to understand the source of raw material • Learners are able to understand the factor affecting on cultivation of raw material • Learners are able to understand WHO and ICH guidelines for evaluation of herbal drugs • Learners should able to understand herbal cosmetics, Sweeteners, nutraceuticals • Learner should able to understanding patenting of product • Learner should able to understanding GMP of product
Biopharmaceutics and Pharmacokinetics – Theory	• Understand the basic concepts in biopharmaceutics and pharmacokinetics. • Use plasma data and derive the pharmacokinetic parameters to describe the process of drug absorption, distribution, metabolism and elimination. • Critically evaluate biopharmaceutic studies involving drug product equivalency and to understand the concepts of bioavailability and bioequivalence of drug products and their significance. • Design and evaluate dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters. • Understand various pharmacokinetic parameters, their significance & applications
Pharmaceutical Biotechnology – Theory	• Understanding the importance of Immobilized enzymes in Pharmaceutical Industries. • Genetic engineering applications in relation to production of pharmaceuticals. • Importance of Monoclonal antibodies in Industries. • Appreciate the use of microorganisms in fermentation technology.
Quality Assurance – Theory	• Understand the cGMP aspects in a pharmaceutical industry. • Appreciate the importance of documentation. • Understand the scope of quality certifications applicable to pharmaceutical industries. • Understand the responsibilities of QA & QC departments.
Seventh Semester	

Sterile Products	• Upon completion of these practical student will able to learn Formulation development and Pharmacopoeial evaluation and labeling of SVPs, LVPs, and ophthalmic preparations • Upon completion of these practical student will learn sealing of ampoules • Upon completion of these practical student will able to Learn the use of ingredients in formulation and category of formulation • Upon completion of these practical student will able to learn Pharmacopoeial evaluation of packaging materials • Upon completion of these practical student will able to learn Importance and validation of aseptic area • Upon completion of these practical student will able to learn Evaluation of marketed preparations • Upon completion of these topic student will able to learn Significance and Accelerated stability testing of marketed samples.
Pharmaceutical Analysis -V	• Introduction to modern methods of analysis like spectroscopy and chromatography • Understand principles of IR (FTIR, NIR) Raman GC, AES, SEM, TEM, SFC and Flash chromatography • Understand instrumentation of IR (FTIR, NIR) Raman AES, SEM, TEM • Understand instrumentation of GC, SFC and Flash chromatography • understand the applications of spectroscopic techniques in Pharmaceutical industry • understand the applications of separation techniques in Pharmaceutical industry
Medicinal Chemistry-III	• Know the general aspects of history, classification & nomenclature of the antibiotics, anti-infective agents and antineoplastic agents. • Understand the structure activity relationship (SAR) of various classes of the antibiotics, anti-infective agents and antineoplastic agents • Know the mechanism of action and therapeutic uses of the antibiotics, anti-infective agents and antineoplastic agents. • Limitation and adverse effects of the antibiotics, anti-infective agents and antineoplastic agents. • Synthesis and mechanism of reaction involved in the synthesis of important antibiotics, anti-infective agents and antineoplastic agents. • Recent developments and future aspects of the antibiotics, anti-infective agents and antineoplastic agents

Pharmacology-IV	• Classification, mechanism of action, antibacterial spectrum, resistance, therapeutic uses, adverse effects and contraindications of various antibiotics • Various endocrine hormones, its types, receptors involved and mechanisms involved • Biosynthesis, Mechanism of Action and Pharmacology of Adrenocorticosteroids and corticosteroid antagonists • Biosynthesis, Mechanism of action, Pharmacology and regulation of Thyroid, antithyroid drugs and Parathyroid hormones • Biosynthesis, Secretion, Mechanism of action, Pharmacology of insulin and glucagon and Pharmacotherapy of Diabetes Mellitus • Pharmacology of Androgens, Estrogens, Progestin and oral contraceptives
Natural Drug Technolog	• Students should be able to understand role of various factors in relation with cultivation, collection, storage, harvesting and post harvesting (CCHP) etc. • Students shoud able to Understand & explain concept of health & pathogenesis, philosophical basis, diagnosis &treatment aspects of AYUSH system of medicine; Understand& explain method of preparation of Ayurvedic dosage forms. • Students should able to Understand and explain the applications of plant tissue culture (PTC) for Secondary metabolite production. • Students should able to Explain in vitro screening methods (IVSM) and its applications for biological evaluation of natural products • Students should able to Explain the approaches and potentials of herbal new drug delivery systems (NDDS) like liposomes, phytosomes, nanoparticles and vesicles. Herbs used in cosmetic preparation & methods of their formulations • Students should able to Understand & explain various physical, chemical, spectroscopic means & methods used instructural elucidation of natural products. He/she should be able to interpret data generated from above techniques.
Bio-Pharmaceutics & Pharmacokinetics	• Understanding the concept of bio pharmaceutics and its applications in formulation development • Studying pharmacokinetic processes and their relevance in efficacy of dosage form • Learning the concepts of bioavailability and bioequivalence studies. • Learning various compartmental models and non-compartmental analysis methods • Understanding concept and mechanisms of dissolution and in vitro in vivo correlation. • Undetstanding the concept of Compartmental analysis leads to understanding of bioanalytical data
Pharmaceutical Jurisprudence	• To understand Basic principles, purpose and dimensions of the laws • To understand the significance and relevance of Pharmaceutical laws in India • To study important rules and regulations and procedures made to execute the laws • To explain the definitions in the Act • To study administrative bodies • To study concept of IPR and Regulatory Affairs

Eighth Semester	
Advanced Drug Delivery System	• To understand the concept of Modified Drug Release, Pre requisites of drug candidates, various approaches and classification • To know about various types of polymers, classification, selection criteria and their application. • To understand types of drug delivery approaches, formulation, merits & demerits, application and their evaluation. • To know about various types of therapeutic Aerosols, typical formulations, intranasal and topical applications thereof. • To understand the concept for microencapsulation, merits, demerits and application and evaluation. • To understand basic concept of optimization techniques.
Cosmetic Science	• Understand the concepts of cosmetics, anatomy of skin v/s hair, general excipients used in cosmetics also explain formulation of cosmetics for skin, manufacturing, equipments &evaluation of creams like cold cream, vanishing cream , powder cosmetics lip care products etc • Explain formulation of cosmetics for hair, manufacturing & evaluation of hair shampoos, tonics etc • Describe formulation of cosmetics for eyes, manufacturing & evaluation of eye mascara, shadow etc. • Understand formulation of manicure products like nail lacquer, remover etc. • Learn formulation, manufacture & evaluation of baby cosmetics like baby oils, powders etc • Explain the concept of cosmeceuticals, history, difference between cosmetics &cosmeceuticals & cosmeceutical agents.
Pharmaceutical Analysis -VI	• Understand principles, instrumentation of NMR and ESR spectroscopy • Understand principles, instrumentation of HPLC • Understand principles, instrumentation of Mass Spectrometry • Understand the different hyphenated techniques • Understand the applications of above techniques in Pharmaceutical research • Understand the applications of above techniques in quality control of APIs & formulations



Medicinal Chemistry-IV	• Know general aspects of the design & development of drugs including history, classification, nomenclature of antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones • Structure activity relationship (SAR) of antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones • Mechanism of Action of antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones • Adverse effects of antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones • Therapeutic uses of antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones • Recent developments in therapeutic categories such as antihistamine, Autacoids, NSAID, Narcotic agents, steroids, Hormones
Pharmacology- V	• Important aspect, classification, mechanism of drug -drug interaction and ADRs. • Basic aspects of drug safety and Pharmacovigilance in relation to monitoring and reporting of ADRs • Functioning and role of hospital pharmacy and practice of rational drug therapy and methods of assessment of patient compliance and non-compliance. • Clinical trials, ethics and practice of Good Clinic al Practice involved in clinical trials. • Process, working and personnel involved in clinical data management and their roles.
Natural Products: Commerce, Industry & Regulations	• Understand & realize the significance of natural products in daily life • He/she should be able to classify different segments in market, demand & supply position; export & Import potential; position of Indian herbal drug industry in global contest • Government Organizations & policies for promotion; their regulation in India & other countries, various regulatory guidelines, ethical issues • Realize the market potential of natural products & explore entrepreneurship skills • Understand & explain safe use of natural products possible toxicities & interaction, Toxicities in most venerable group • Need & significance of Pharmacovigilance systems

COLLEGE OF PHARMACEUTICAL EDU. & RESEARCH Sanjivani Rural Education Society's KOPARGAON

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Quality Assurance Techniques	• Students can able to understand Concept of quality, quality assurance, quality control, IPQC in pharmaceutical industry, objectives, components of quality assurance, and responsibilities of QA Dept. Few documents such as BPCR and MPCR • Calibration & Qualifications: Equipment qualification, URS, DQ, IQ, OQ, and PQ. • Concept of Good Manufacturing Practices (GMP), Good Laboratory Practices (GLP), Good Documentation Practices (GDP). • Pharmaceutical Validation: Introduction, scope, objective, need, benefits, types of validation,documentation involved in validation • Introduction to Regulatory Agencies imparting quality standards such as WHO, ICH, USFDA, TGA, MHRA • Introduction to QbD: Steps in QbD approach, significance and regulatory guidelines.

(Gosavi S.A.)

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PROGRAM OUTCOMES

Program outcomes describe what students are expected to know and are able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.

The following outcomes reflect the terminal skills that all B. Pharmacy graduates should be able to demonstrate upon program completion:

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, analyze 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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