PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, PERUMTHURUTHY

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COURSE OUTCOME

I ST SEMESTER B PHARM

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, PERUMTHURUTHY

COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**I**
SUBJECT	**Human Anatomy & Physiology-I Theory**

SL.NO	COURSE OUTCOME	DESCRIPTION	BLOOMS LEVEL
1	**CO1:BP.101 T**	Describe the structure and functions of various systems of the human body, cellular organization, and tissue levels.	Remember(L1) Understand (L2), Apply(L3)
2	**CO2:BP.101 T**	Explain the integumentary, skeletal system, joints, and their disorders	Understand (L2)
3	**CO3:BP.101 T**	Demonstrate knowledge of body fluids, blood, and the lymphatic system.	Analyze (L4)
4	**CO4:BP.101 T**	Correlate various organ physiology and nervous system control; understand special senses.	Understand (L2)
5	**CO5:BP.101 T**	Understand the cardiovascular system and its regulation.	Understand (L2)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**I**
SUBJECT	**Pharmaceutical Analysis-I Theory**

Sl No:	**Course Code**	**Description**	**Bloom Level (L1-L6)**
1.	**CO1:BP.102 T**	Explain the different technique of analysis and methods for expressing concentration. Basic principles and significance of errors in pharmaceutical analysis.	Remember (L1) Understand (L2)
2.	**CO2:BP.102 T**	Describe and classify volumetric analytical methods such as acid-base and non-aqueous methods	Understand (L2) Apply (L3)
3.	**CO3:BP.102 T**	Apply concepts of precipitation, complexometry and gravimetric titrations.	Understand (L2) Analyze (L4)
4.	**CO4:BP.102 T**	Determine the concentration of analyte using redox titration methods	Remember(L1) Understand(L2) Apply(L4)
5.	**CO5:BP.102 T**	Explain the concepts of electrochemicalmethods including potentiometry, conductometry, and polarography, and discuss their applications in pharmaceutical analysis.	Remember (L1) Understand (L2)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**I**
SUBJECT	**PHARMACEUTICS- I-Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1:BP.103 T**	Explain the history and development of the pharmacy profession in India, along with the features of major pharmacopoeias (IP, BP, USP and Extra Pharmacopoeia). Understand the classification and principles of conventional dosage forms. Describe the parts of a prescription, proper handling, posology, and perform dosage calculations—including pediatric dosing.	Remember(L1)/ Understand(L2)/ Apply(L3)
2.	**CO2: BP.103T**	Apply various pharmaceutical calculations (e.g. Imperial & Metric system) required in dosage formulation and compounding. Understand the classification, requirements and methods for formulating powders. Learn the excipients used in liquid dosage forms and about Solubility enhancement techniques.	Apply(L3)/ Understand (L2)/ Remember (L1)
3.	**CO3:BP.103 T**	Understand the requirements and methods for formulating both monophasic and biphasic (Suspension & Emulsions) liquid dosage forms.	Understand(L2) / Analyze(L4)
4.	**CO4:BP.103T**	Learn the basic formulation and evaluation of suppositories. Explain types of pharmaceutical incompatibilities and strategies to manage them during formulation	Remember(L1) / Understand(L2) / Apply(L3)
5.	**CO5:BP.103T**	Learn the basic formulation and evaluation of semisolid dosage forms like creams, ointments, gels, including transdermal penetration mechanisms and influencing factors.	Remember(L1) / Understand (L2)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**First**
SUBJECT	**Pharmaceutical Inorganic Chemistry - Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**: **BP104T**	Concept and role of pharmacopoeias, identify pharmaceutical impurities, and explain their control methods.	Remember(L1), Understand(L2)
2.	**CO2**: **BP104T**	The principles of buffers, electrolytes, NaCl equivalence, freezing point depression, and their pharmaceutical relevance	Understand(L2), Apply(L3)
3.	**CO3**: **BP104T**	The composition and therapeutic use of dental products and gastrointestinal agents, along with their mechanisms of action.	Apply(L3), Analyze(L4)
4.	**CO4**: **BP104T**	The properties, functions, and mechanisms of action of inorganic drugs such as expectorants, emetics, haematinics, antidotes, and astringents.	Understand(L1), Analyze(L4)
5.	**CO5**: **BP104T**	The principles, types, and pharmaceutical applications of radiopharmaceuticals	Apply(L3), Evaluate(L5)

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COURSE OUTCOME

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PRACTICAL

PUSHPAGIRI COLLEGE OF PHARMACY
MEDICITY CAMPUS, PERUMTHURUTHY

COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**1**
SUBJECT	**Human Anatomy and Physiology 1 Practical**

SL NO	COURSE OUTCOME	DESCRIPTION	MILLER PYRAMID LEVEL
1	**CO1:BP.107 P**	Identify and describe the microscopic structure of epithelial, connective, muscular, and nervous tissues, and major bones of the human skeleton.	Knows / Knows How
2	**CO2:BP.107 P**	Demonstrate hematological techniques including hemocytometer use for counting RBCs and WBCs.	Shows How
3	**CO3:BP.107 P**	Perform and interpret basic blood investigations such as bleeding time, clotting time, hemoglobin estimation, blood grouping, and ESR	Shows How
4	**CO4:BP.107 P**	Measure, record, and interpret vital physiological parameters including heart rate, pulse rate, and blood pressure	Shows How/ Does
5	**CO5:BP.107 P**	Integrate practical laboratory skills with theoretical knowledge to correlate experimental findings with normal physiological functions.	Shows How/ Does

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**1**
SUBJECT	**Pharmaceutical Analysis-I Practical**

Sl No:	**Course Code**	**Outcome Description**	**Miller's Pyramid**
1.	**CO1:BP.108 P**	Carry out the impurity determination using limit test	Know's How Show's How
2.	**CO2:BP.108 P**	Preparation of analytical solutions	Show's How
3.	**CO3:BP.108 P**	Standardization of solutions and determining the normality	Show's How
4.	**CO4:BP.108 P**	Perform and Calculate percentage purity of some compounds (Assay)	Show's How
5.	**CO5:BP.108 P**	Normality determination using electroanalytical methods	Show's How

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**I**
SUBJECT	**Pharmaceutics-I Practical**

Sl No:	**Course Code**	**Outcome Description**	**Miller's Pyramid**
1.	**CO1:BP.109P**	Prepare Effervescent Granules, Dusting powder, ORS powder, Divided powders.	Knows/ Shows How
2.	**CO2:BP.109P**	Prepare monophasic liquid dosage forms (Syrups, Elixirs, Linctus, Throat paint, Solutions, Gargles, Mouthwashes) for internal use.	Knows/ Shows How
3.	**CO3:BP.109P**	Prepare Biphasic liquid dosage forms (Suspension and Emulsion) for internal & external use.	Knows/ Shows How
4.	**CO4:BP.109P**	Prepare Suppositories by Fusion method.	Knows How/ Shows How
5.	**CO5:BP.109P**	Prepare Ointment by Trituration, Fusion and Chemical reaction methods.	Knows How/ Show's How

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**I**
SUBJECT	**Pharmaceutical Inorganic Chemistry - Practical**

Sl No:	Course Code	Description	Millers Level
1.	**CO1: BP.110 P**	Find impurites present in pharmaceutial compounds	Knows How
2.	**CO2: BP.110 P**	Demonstrate the limit tests for impurities like chlorides, sulphates, iron, and heavy metals as per IP.	Shows How
3.	**CO3: BP.110 P**	Prepare official inorganic pharmaceutical compounds and evaluate their purity by appropriate methods..	Shows How
4.	**CO4: BP.110 P**	Perform identification tests for cations and anions in inorganic salts using qualitative analysis techniques	Knows How
5.	**CO5: BP.110 P**	Record and interpret experimental data accurately and maintain laboratory notebooks as per scientific standards.	Does

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COURSE OUTCOME

SECOND SEMESTER B PHARM

THEORY

PUSHPAGIRI COLLEGE OF PHARMACY
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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Pharmaceutical Organic Chemistry I- Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**:BP.202 T	Recall and explain the classification, structure, and nomenclature of organic compounds based on IUPAC rules.	Remember(L1), Understand (L2)
2.	**CO2**: BP.202 T	Describe and interpret fundamental organic reaction mechanisms, including halogenation, nitration, sulphonation, and Friedel-Crafts reactions	Understand (L2), Apply (L3)
3.	**CO3**:BP.202 T	Apply the concepts of electronic effects, resonance, and inductive effects to predict the reactivity and stability of organic compounds	Apply(L3), Analyze(L4)
4.	**CO4**:BP.202 T	Differentiate between types of isomerism and determine stereochemistry in simple organic molecules	Understand(L2), Analyze (L4)
5.	**CO5**:BP.202 T	Perform basic qualitative tests to identify functional groups and understand their chemical behavior in laboratory experiments	Apply(L3), Evaluate(L5)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B.Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Human Anatomy & Physiology – II(Theory)**

SL.NO	COURSE CODE	DESCRIPTION	BLOOM LEVELS (L1 TO L6)
1.	**CO1**: BP 201T	Explain the structure and functions of the nervous system and central nervous system	Remember **(L1)** Understand**(L2)** Apply **(L3)**
2.	**CO2**: BP 201T	Describe the anatomy & physiology of the digestive system and energetics	Understand**(L2)** Apply **(L3)** Analyze **(L4)**
	CO3: BP 201T	Explain the functions of the respiratory & urinary systems and associated disorders	Understand**(L2)** Apply **(L3)** Analyze **(L4)**
4.	**CO4**: BP 201T	Understand the endocrine system and the mechanism of hormone action	Remember**(L1)** Understand**(L2)** Apply **(L3)**
5.	**CO5**: BP 201T	Describe the reproductive system & basics of genetics	Understand**(L2)** Apply **(L3)** Analyze **(L4)**

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B.Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**BIOCHEMISTRY-Theory**

COs	OUTCOME DESCRIPTION	Bloom's Level
CO1	Understand classification, chemical nature, biological roles, and metabolism of biomolecules (carbohydrates, lipids, proteins, amino acids, nucleic acids)	L2
CO2	Explain bioenergetics and biological oxidation pathways (e.g., glycolysis, Krebs cycle, oxidative phosphorylation)	L2
CO3	Comprehend the genetic organization of mammalian genome and functions of DNA in transcription and translation	L2
CO4	Understand catalytic roles of enzymes and the importance of enzyme inhibition for drug design, diagnostics, and therapeutic use	L3
CO5	Summarize metabolism of nutrients in physiological vs pathological states	L4

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**2**
SUBJECT	**Pathophysiology-Theory**

Sl No:	Course Code	Description	Bloom Level
1.	CO1:BP.204 T	Describe the etiology, pathogenesis, and morphological features of cell injury, adaptation Analyze the mechanisms underlying inflammatory processes, wound healing and repair, atherosclerosis.	Remembering (Level 1) & Understanding (Level 2)
2.	CO2:BP. 204T	Explain clinical signs, symptoms, and complications associated with diseases affecting cardiovascular, respiratory, renal, hematological, endocrine, gastrointestinal, musculoskeletal, nervous, and psychiatric systems	Understanding (Level 2)
3.	CO3:BP. 204 T	Apply pathophysiological principles to interpret the systemic manifestations of conditions like hypertension, asthma, diabetes mellitus, anemia, peptic ulcer.	Applying (Level 3)
4.	CO4:BP. 204 T	Integrate knowledge of systemic pathophysiology to predict disease progression in complex or co-morbid conditions like rheumatoid arthritis, dementia, infectious disease and oncogenesis.	Analyzing (Level 4)
5.	CO5:BP. 204 T	Apply pathophysiological principles to interpret the systemic manifestations of conditions like Meningitis, Typhoid, Leprosy, Tuberculosis Urinary tract infections, AIDS, Syphilis, Gonorrhea	Applying (Level 3)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**2**
SUBJECT	**Environmental Sciences-Theory**

Sl No:	Course Code	Description	Bloom Level
1.	CO1:BP.206T	Understand the importance of environmental studies and the need for sustainable development in relation to human health and pharmaceutical practice.	Level 2
2.	CO2:BP. 206T	Explain key environmental concepts such as ecosystems, biodiversity, and natural resource management, relevant to the pharmaceutical industry	Level 2
3.	CO3:BP. 206T	Analyze various types of environmental pollution (air, water, soil, noise, radioactive), their causes, effects, and preventive measures, with emphasis on pharmaceutical waste.	Level 4
4.	CO4:BP.206T	Describe environmental laws and regulations related to pollution control, waste management (including biomedical and pharmaceutical waste), and environmental protection in India.	Level 1 & 2
5.	CO5:BP.206T	Apply principles of environmental ethics and sustainable development in pharmaceutical practice, including green chemistry and eco-friendly manufacturing	Level 3
6	CO6:BP.206T	Evaluate the impact of human and industrial activities (especially pharmaceutical industries) on the environment and suggest mitigation strategies.	Level 5

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Computer Applications in Pharmacy – Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**:BP.205 T	Describe the basics of computer and their components	Remember (L1)
2.	**CO2**:BP.205 T	Apply MS Office tools for documentation, data management and presentations	Apply (L3)
3.	**CO3**:BP.205 T	Utilize software for drug information retrieval and patient data management	Apply (L3)
4.	**CO4**:BP.205 T	Explain the importance of databases and networking in pharmacy	Understand(L2)
5.	**CO5**:BP.205 T	Demonstrate the use of software in pharmacy practice (e.g., billing, inventory)	Apply (L3)

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COURSE OUTCOME

SECOND SEMESTER B PHARM

PRACTICAL

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Pharmaceutical Organic Chemistry I- Practical**

Sl No:	Course Code	Description	Miller's Pyramid
1.	**CO1**: BP.208 P	Perform purification techniques such as recrystallization and distillation of organic compounds.	Shows how
2.	**CO2:** BP.208 P	Identify and detect functional groups in organic compounds using qualitative chemical tests.	Shows how
3.	**CO3**: BP.208 P	Understand and carry out the reactions like nitration, halogenation, and hydrolysis of organic compounds.	Knows how
4.	**CO4**: BP.208 P	Record and interpret experimental data accurately and maintain laboratory notebooks as per scientific standards.	Does
5.	**CO5**: BP.208 P	Demonstrate safe handling of chemicals and follow ethical and environmental practices in laboratory settings.	Shows how

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B.Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Human Anatomy & Physiology –II(Practical)**

Sl No:	Course Code	Description	Miller's Pyramid
1.	**CO1**: BP.208 P	Perform purification techniques such as recrystallization and distillation of organic compounds.	Shows how
2.	**CO2:** BP.208 P	Identify and detect functional groups in organic compounds using qualitative chemical tests.	Shows how
3.	**CO3**: BP.208 P	Understand and carry out the reactions like nitration, halogenation, and hydrolysis of organic compounds.	Knows how
4.	**CO4**: BP.208 P	Record and interpret experimental data accurately and maintain laboratory notebooks as per scientific standards.	Does
5.	**CO5**: BP.208 P	Demonstrate safe handling of chemicals and follow ethical and environmental practices in laboratory settings.	Shows how

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**II**
SUBJECT	**Computer Applications in Pharmacy – Practical**

Sl No:	Course Code	Description	Millers Pyramid
1.	**CO1:BP.210 P**	Operate MS Word to create, format, and edit pharmacy-related documents	Knows how
2.	**CO2:BP. 210 P**	Create Web Pages using HTML	Does
3.	**CO3:BP. 210 P**	Retrieve and interpret drug information using online databases and search engines	Shows how
4.	**CO4:BP. 210 P**	Explain the importance of databases	Knows how
5.	**CO5: BP. 210P**	Networking in pharmacy	Shows how

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Second**
SUBJECT	**Biochemistry- Practical**

Sl No:	Course Code	Description	Miller's Pyramid
1.	**CO1**:BP.209P	Demonstrate the preparation and handling of laboratory reagents and solutions used in biochemical experiments.	Does
2.	**CO2**:BP.209P	Estimate the abnormal constituents in urine samples.	Shows How
3.	**CO3**:BP.209P	Perform quantitative and qualitative analysis of biomolecules (glucose, urea, creatinine, etc.) in biological fluids.	Shows How
4.	**CO4**:BP.209P	Interpret the biochemical significance of test results in clinical scenarios and correlate the	Shows How

		practical findings with theoretical knowledge for better understanding of biochemical processes.	
5.	**CO5**:BP.209P	Follow safe laboratory practices, maintain proper records and demonstrate professionalism in lab settings.	Does

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COURSE OUTCOME

THIRD SEMESTER B PHARM

THEORY

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Organic Chemistry II- Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**:BP.301 T	Understand and Recall the chemistry and reactivity of Benzene.	Remember(L1), Understand (L2)
2.	**CO2**: BP.301 T	Explain the classification, reactivity, synthesis, reactions and qualitative test for phenols and aromatic amines	Understand (L2), Apply (L3)
3.	**CO3**: BP.301 T	Detailed study on Fats and oils.	Apply(L3), Analyze(L4)
4.	**CO4**: BP.301 T	Describe the reactivity, stability and uses of Polynuclear compounds.	Understand(L2), Analyze (L4)
5.	**CO5**: BP.301 T	Describe the reactivity and stability of Cycloalkanes.	Apply(L3), Evaluate(L5)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B.Pharm**
BATCH	**2025 -2026**
SEMESTER	**Third**
SUBJECT	**Physical Pharmaceutics –I(Theory)**

Sl. No.	Course Code	Description	Bloom Level
1.	**CO1:**BP302T	Explain the principles of solubility and the factors affecting drug solubility in various solvents and biological systems.	Understand (level 2)
2.	**CO2:**BP302T	Describe the different states of matter, phase transitions, and evaluate key physicochemical properties of drug molecules.	Analyze (Level 4)
3.	**CO3:**BP302T	Apply micromeritics concepts to determine particle size, surface area, porosity, and flow properties relevant to dosage form design.	Apply (Level 3)
4.	**CO4**:BP302T	Understand drug-complex formation, protein binding, and their impact on drug stability and pharmacological action.	Understand (Level 2)
5.	**CO5:**BP302T	Demonstrate the role of pH, buffers, and isotonic solutions in pharmaceutical formulation and biological compatibility.	Apply (Level 3)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Microbiology- Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**:BP.303T	Describe the structure, classification, and characteristics of microorganisms relevant to pharmacy.	Remember(L1) Understand(L2)
2.	**CO2**: BP.303T	Perform basic microbiological techniques (staining, culture, isolation, identification of microbes).	Remember(L1) Apply(L3)
3.	**CO3**:BP.303T	Apply methods of sterilization, disinfection, and preservation in pharmaceutical and clinical practice.	Remember(L1) Apply(L3)
4.	**CO4**:BP.303T	Design and evaluate aseptic areas and contamination control procedures in pharmaceutical industries.	Understand(L2) Evaluate(L5)
5.	**CO5**:BP.303T	Correlate animal cell culture with pharmaceutical applications	Understand(L2) Analyze (L4)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Engineering -Theory**

Sl. No.	Course Code	Description	Bloom's Level
1	**CO1**:BP304T	Explain and classify fundamental concepts of pharmaceutical unit operations such as size reduction, size separation, and mixing techniques	Level2(Understand), Level 4 (Analyze)
2	**CO2**:BP304T	Apply and analyze principles of fluid flow in pharmaceutical processes	Level3(Apply), Level 4 (Analyze)
3	**CO3**:BP304T	Apply and interpret heat transfer operations including evaporation, distillation, and drying processes	Level3(Apply), Level 4 (Analyze)
4	**CO4**:BP304T	Apply principles and compare methods of filtration and centrifugation	Level3(Apply), Level 4 (Analyze)
5	**CO5**:BP304T	Understand materials of pharmaceutical plant construction, corrosion and its prevention, and material handling systems used in pharmaceutical industries.	Level2(Understand), Level 4 (Analyze)

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THIRD SEMESTER B PHARM

PRACTICAL

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Organic Chemistry II- Practical**

Sl No:	Course Code	Description	Miller's Pyramid
1.	**CO1**: BP.305 P	Perform purification techniques such as recrystallization and distillation of organic compounds.	Shows how
2.	**CO2:** BP.305 P	Understand and carry out the reactions like nitration, halogenation, and hydrolysis of organic compounds.	Shows how
3.	**CO3**: BP.305 P	Preparation of various organic compounds.	Knows how
4.	**CO4**: BP.305 P	Standardization of reagents used in the determination of various oil values.	Does
5.	**CO5**: BP.305 P	Estimation of various analytical constants of fats and oils.	Shows how

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B.Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Physical Pharmaceutics –I(Practical)**

Sl. No.	Course Code	Description	Millers Pyramid
1.	**CO1:**BP 306P	Determine the solubility and evaluate the partition coefficient in multi-solvent systems.	Knows How
2.	**CO2:**BP 306P	Analyze particle size, size distribution, and micromeritic properties using sieving and microscopy techniques.	Shows How
3.	**CO3:**BP 306P	Evaluate powder characteristics such as bulk density, true density, porosity, and angle of repose relevant to preformulation.	Shows How
4.	**CO4:**BP 306P	Determine the percentage composition and understand the effect of electrolytes on mutual solubility.	Knows How
5.	**CO5:**BP 306P	Determine the pKa of pharmaceutical substances using appropriate analytical methods.	Shows How

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Microbiology– Practical**

Sl No:	Course Code	Description	Miller's Pyramid
1.	**CO1**: BP.305 P	Perform purification techniques such as recrystallization and distillation of organic compounds.	Shows how
2.	**CO2:** BP.305 P	Understand and carry out the reactions like nitration, halogenation, and hydrolysis of organic compounds.	Shows how
3.	**CO3**: BP.305 P	Preparation of various organic compounds.	Knows how
4.	**CO4**: BP.305 P	Standardization of reagents used in the determination of various oil values.	Does
5.	**CO5**: BP.305 P	Estimation of various analytical constants of fats and oils.	Shows how

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**Third**
SUBJECT	**Pharmaceutical Engineering- Practical**

Sl No.	Course Code	Description	Miller's Pyramid
1.	**CO1**: BP.308 P	Analyze the effect of process variables on filtration and evaporation operations	Shows How
2.	**CO2**: BP.308 P	Perform particle size determination using sieve analysis and sedimentation methods	Shows How / Does
3.	**CO3**: BP.308 P	Construct drying rate curves and evaluate drying and size-reduction processes	Shows How
4.	**CO4**: BP.308 P	Explain the working principles and operational features of pharmaceutical equipment	Knows How
5.	**CO5**: BP.308 P	Measure and interpret humidity, moisture content, and loss on drying using standard methods	Shows How / Does

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COURSE OUTCOME

IV th SEMESTER B PHARM

THEORY

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**IV**
SUBJECT	**Pharmaceutical Organic Chemistry III-Theory**

Sl. No:	Course Code	Description	Bloom Level
1.	**CO1:BP.401 T**	Principles of stereoisomerism, optical activity, DL & RS nomenclature	Understand(L2), Apply (L3)
2.	**CO2:BP.401 T**	Enantiomers, diastereomers, racemates, resolution, asymmetric synthesis	Analyze (L4)
3.	**CO3:BP.401 T**	Five-membered heterocycles (pyrrole, furan, thiophene) – synthesis, reactions & uses.	Understand(L2), Apply (L3)
4.	**CO4:BP.401 T**	Six-membered & fused heterocycles and medicinal relevance	Understand(L2), Analyze (L4)
5.	**CO5:BP.401 T**	Reactions of synthetic importance in pharmaceutical chemistry	Apply(L3), Analyze (L4)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**IV**
SUBJECT	**Medicinal Chemistry- Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1:BP.402 T**	Understand the various physicochemical properties and study of phase I and phase II reactions.	Apply(L3)
2.	**CO2:BP.402 T**	Identify the structure, IUPAC and stereochemistry of drugs belonging to ANS, CNS and analgesics.	Understand (L1)
3.	**CO3:BP.402 T**	Describe the MOA and uses of drugs belonging to ANS, CNS and analgesics.	Remember (L2)
4.	**CO4:BP.402 T**	Discuss the SAR of drugs belonging to ANS, CNS and analgesics.	Understand(L1)
5.	**CO5:BP.402 T**	Outline the synthesis and chemical reaction of drugs belonging to ANS, CNS and analgesics.	Create (L6)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**1V**
SUBJECT	**Physical Pharmaceutics II**

Sl No:	**Course Code**	**Description**	**Bloom Level**
1.	**CO1:BP.403 T**	Know the principles of chemical kinetics and to use them in assigning expiry date of formulation.	Understand(L1)/ Apply (L3)
2.	**CO2:BP.403 T**	Apply rheological principles in evaluating pharmaceutical formulations	Apply(L3)
3.	**CO3:BP.403 T**	Learn the formulation concepts of pharmaceutical suspensions and emulsions and their stability problems	Understand(L1) / Apply(L3)
4.	**CO4:BP.403 T**	Analyze the behavior of colloidal systems and surfactants in drug delivery systems	Analyze(L4)
5.	**CO5:BP.403 T**	Acquire skills and working knowledge of the principles and concepts of surface tension and its measurement	Understand(L1)/Apply(L3)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**IV**
SUBJECT	**Pharmacology -I -Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1:BP.404 T**	Understand the general pharmacological principles including drug absorption, distribution, metabolism, and excretion (ADME).	Understand(L1)
2.	**CO2:BP.404 T**	Explain pharmacodynamics including drug-receptor interactions and dose-response relationships.	Understand(L1)
3.	**CO3:BP.404 T**	Describe autonomic pharmacology including drugs acting on the autonomic nervous system.	Apply(L3)
4.	**CO4:BP.404 T**	Understand the pharmacology of drugs affecting the cardiovascular system.	Understand (L1), Apply(L3)
5.	**CO5:BP.404 T**	Comprehend mechanisms, clinical uses, and side effects of major drug classes covered in the course.	Understand(L1)

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COLLEGE	**Pushpagiri College of Pharmacy**
COURSE	**B Pharm**
BATCH	**2025-2026**
SEMESTER	**IV**
SUBJECT	**Pharmacognosy & Phytochemistry I, Theory**

Sl No:	Course Code	Description	Bloom Level
1.	**CO1**:BP.405 T	Understand the fundamental principles and scope of Pharmacognosy and Phytochemistry. Evaluate the adulteration and quality control measures of herbal drugs.	Understand/Evaluate
2.	**CO2:** BP.405 T	Explain the cultivation, collection, processing, and storage of medicinal plants and factors influencing their quality. Discuss the conservation of rare medicinal plants.	Understand
3.	**CO3**:BP.405 T	Understand the basic principles and techniques of plant tissue culture. Describe various types of plant tissue culture methods. Apply plant tissue culture in pharmaceutical and medicinal plant propagation.	Understand /Apply
4.	**CO4**:BP.405 T	Illustrate the fundamentals and significance of Traditional Systems of Medicine (Ayurveda, Siddha, Unani, Homeopathy, etc.). Interpret the role of secondary metabolites (alkaloids, glycosides, tannins, terpenoids, etc.) in pharmacological activities and quality assessment.	Remember/ Understand
5.	**CO5**:BP.405 T	Explain about various drugs from natural sources. Explain about primary metabolites and chemical tests on selected crude drugs.	Apply / Analyze