



COURSE OUTCOME (CO)

Bachelor of Pharmacy (B. Pharm.)



BENGAL SCHOOL OF TECHNOLOGY

(Courses offered: B. Pharm., M. Pharm. (Pharmaceutics), M. Pharm. (Pharmacology))

Approved by PCI, Affiliated to MAKAUT

Accredited by NAAC, Accredited by NBA for B. Pharm.

Sugandha, Delhi Road, Near Chinsurah RS, Hooghly-712 102, West Bengal

Phone: 033 26866064/4913, Telefax: 03326864281,

E Mail: principal@bstpharmacy.in Website: www.bstpharmacy.in



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Communication Skill Subject Code: HU-181

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand Importance of Communication in life and its process.
CO-2	To learn how to write Business Correspondance.
CO-3	To know Importance of Listening.
CO-4	To understand how to speak, and how to face Interviews and Group Discussion.
CO-5	To learn Pronunciation of english.

CO-PO MATRICES

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Analysis I

Subject Code: PT 101

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To explain the principles and procedure employed in volumetric and electrochemical analysis
CO-2	To illustrate sources of errors in analytical techniques, methods to minimize them; to explain the theoretical basis of commonly used statistical methods; and to analyze and interpret the results of statistical data from experiments
CO-3	To employ volumetric and electrochemical techniques in quality control of pharmaceuticals
CO-4	To interpret the physiochemical concepts of analysis, theories of acids and bases, stoichiometry etc.; to assess problems based on the volumetric and electrochemical principles
CO-5	To analyze drugs by volumetric and electrochemical titrations and develop analytical skills

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustainability)	PO-11 (Life Long Learning)
CO-1	3	-	-	3	-	-	-	-	-	-	3
CO-2	3	3	3	1	-	-	-	-	-	-	3
CO-3	3	3	3	3	-	-	-	-	-	-	3
CO-4	3	3	3	-	-	-	-	-	-	-	3
CO-5	3	3	3	3	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutics-I

Subject Code: (PT-106)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To remember the history of profession of pharmacy in India related with pharmacy education, career including industry and organization.
CO-2	To know about the details of the prescription and analyze every parts and handling process of the prescription with the correction of errors and include posology for the dose calculation with respects of different factors.
CO-3	To know about the concepts of dosage forms and incompatibilities with Apply Pharmaceutical calculation for the design and evaluation part of the different formulation including powders, liquid dosage forms.
CO-4	To understand the concepts of every Biphasic and Monophasic dosage form including suspension, emulsion with the study of evaluation and incompatibilities of dosage forms.
CO-5	To know about the concept of solid and semisolid dosage form and Analyze their evaluation parameter and incompatibilities.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	1	1	1	1	1	2	2	2	3
CO-2	3	2	3	2	1	1	1	2	2	2	3
CO-3	2	2	3	2	1	1	2	2	3	2	3
CO-4	2	1	2	3	2	1	1	2	3	2	3
CO-5	2	1	3	3	1	1	2	1	2	2	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: HUMAN ANATOMY AND PHYSIOLOGY-I

Subject Code: (PT-105)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To Explain the gross morphology, structure, and functions of various organs of the human body.
CO-2	To Describe the various homeostatic mechanisms and their imbalances
CO-3	To Identify the various tissues and organs of different systems of the human body.
CO-4	To perform the various experiments related to special senses and the nervous system.
CO-5	To Appreciate coordinated working pattern of different organs of each system

CO-PO MATRICES

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustainability)	PO-11 (Life Long Learning)
CO-1	3	-	2	2	-	2	2	2	2	3	3
CO-2	3	-	2	2	-	2	2	2	3	2	3
CO-3	3	-	2	2	-	2	-	2	2	2	3
CO-4	3	-	2	2	-	2	2	1	2	2	3
CO-5	3	2	2	2	-	2	3	3	3	3	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Environmental Sciences

Subject Code: HU 282

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To define & interpret their knowledge about different Natural Resources.
CO-2	To expand their knowledge regarding problems associated with different Natural Resources.
CO-3	To judge causes and solution of pollution...
CO-4	To ascertain the Classification of ecosystem and their composition.
CO-5	To describe problems associated with ecosystem and their depletion.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	1	3	3	1	3	1	1	2	1	1	3
CO-2	1	3	2	1	3	2	1	3	1	2	3
CO-3	1	3	2	1	2	1	1	2	2	3	3
CO-4	1	1	1	1	1	1	1	2	1	2	3
CO-5	1	3	1	1	1	1	1	2	1	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Computer Application in Pharmacy

Subject Code: (PTC-203)

CO (Course Outcome)	OBJECTIVES (DESCRIPTIONS)
CO ₁	To define & interpret their own knowledge upon number system as well as information system.
CO ₂	To give brief idea about web Technology & data base and its application of pharmacy field.
CO ₃	To quote and illustrate the technologies being applied within the platform of pharmacy in addition to some label of software.
CO ₄	To recite the utilization of computer in the field of bioinformatics in addition to database, scope, application, vacancies development and its limitations to identify in the broad spectrum of pharmaceutical research and formulation development on basis of existing information related to bioinformatics.
CO ₅	To describe the process of separation technique to be utilized in the field of preclinical studies and to summarize the information related to laboratories as well as text.

CO-PO MATRICES

CO's ↓	PO's										
	PO ₁ (Pharmacy Knowledge)	PO ₂ (Planning Abilities)	PO ₃ (Problem Analysis)	PO ₄ (Modern tool uses)	PO ₅ (Leadership Skills)	PO ₆ (Professional identity)	PO ₇ (Pharmaceutical Ethics)	PO ₈ (Communication)	PO ₉ (Pharmacist & society)	PO ₁₀ (Environment & sustain ability)	PO ₁₁ (Life long learning)
CO1	2	2	3	1	1	1	1	2	1	1	3
CO2	3	3	2	3	3	2	1	1	1	2	3
CO3	3	3	2	1	2	1	1	2	2	3	3
CO4	3	2	1	1	1	1	1	2	1	2	3
CO5	3	3	3	1	1	1	1	2	1	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Organic Chemistry-I

Subject Code: PT 213

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To solve the nomenclature of simple organic compounds by analyzing chemical structure and vice versa; and to classify structural Isomerism
CO-2	To synthesize organic compounds by different methods; and to relate the structure of organic compounds with their physical Properties
CO-3	To find the mechanism and orientation of important name reactions of organic compounds
CO-4	To interpret reactivity/stability of organic compounds
CO-5	To apply the knowledge for the identification of organic compounds; and to appraise their medicinal and pharmaceutical applications

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	3	-	-	-	-	-	-	-	3
CO-2	3	3	3	2	-	-	-	-	-	-	3
CO-3	3	3	3	-	-	-	-	-	-	-	3
CO-4	3	3	3	-	-	-	-	-	-	-	3
CO-5	3	3	3	2	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Biochemistry

Subject Code: PT-214

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To find the molecular levels of the chemical process associated with the living cells; and to interpret the role of biomolecules
CO-2	To describe the principle involved in the metabolism of nutrient molecules; and to interpret their effect on physiological and pathological condition
CO-3	To explain the concept of bioenergetics, energy rich compounds; and to apply their principle in Electron Transport Chain and Oxidative Phosphorylation
CO-4	To find the catalytic role of enzymes, their application in therapeutic and diagnostic level; and to assess the significance of enzyme inhibitors in design of new drugs
CO-5	To illustrate the genetic organization of mammalian genome and the hetero and autolytic function of DNA in RNA and protein Synthesis

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	1	-	-	-	-	-	-	-	3
CO-2	3	1	1	-	-	-	-	-	-	-	3
CO-3	3	1	2	-	-	-	-	-	-	-	3
CO-4	3	1	2	2	-	-	-	-	-	-	3
CO-5	3	1	1	2	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pathophysiology

Subject Code: PT-216

COURSE OUTCOME (CO)	COURSE OUTCOMES (CO's)
CO1	To explain the etiology pathogenesis of different diseases and response of the body to corresponding disease state.
CO2	To summarize the complications related to different disease state.
CO3	To interpret disease type based on the signs and symptoms.
CO4	To compare between multiple pathological changes for a disease.
CO5	To frame an outline for rational treatment for the disease.

CO-PO MATRICES

CO's ↓	PROGRAM-OUTCOME (PO's)										
	PO1 (Pharmacy Knowledge)	PO2 (Planning Abilities)	PO3 (Problem Analysis)	PO4 (Modern tool uses)	PO5 (Leadership Skills)	PO6 (Professional identity)	PO7 (Pharmaceutical Ethics)	PO8 (Communication)	PO9 (Pharmacist & society)	PO10 (Environment & sustain ability)	PO11 (Lifelong learning)
CO1	3	-	3	3	-	2	-	2	3	-	3
CO2	3	-	3	3	-	2	-	2	3	3	3
CO3	3	-	3	3	-	2	2	3	3	3	3
CO4	3	-	2	3	2	2	2	3	3	3	3
CO5	3	-	2	3	2	2	2	3	3	3	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: HUMAN ANATOMY AND PHYSIOLOGY-II

Subject Code: PT-216

COURSE OUTCOME (CO)	COURSE OUTCOMES (CO's)
CO1	To give idea of the anatomical features and organization of nervous system, digestive system, respiratory system, urinary system, endocrine system and reproductive system.
CO2	To explain the physiological activity of nervous system, digestive system, respiratory system, urinary system, endocrine system and reproductive system.
CO3	To describe the functions of Nervous System, digestive system, Respiratory system, Urinary system, endocrine system and Reproductive system.
CO4	To interpret and analyze the diseases of nervous system, digestive system, respiratory system, urinary system, endocrine system and reproductive system and apply the basic concept of genetics.
CO5	To give conclusions of the diagnostic tests for the disorders of Nervous System, digestive system, Respiratory system, Urinary system, endocrine system and Reproductive system.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO's ↓	PROGRAM OUTCOMES (PO's)										
	PO1 (Pharmacy Knowledge)	PO2 (Planning Abilities)	PO3 (Problem Analysis)	PO4 (Modern tool uses)	PO5 (Leadership Skills)	PO6 (Professional Identity)	PO7 (Pharmaceutical Ethics)	PO8 (Communication)	PO9 (Pharmacist & society)	PO10 (Environment & sustainability)	PO11 (Lifelong learning)
CO1	3	-	3	3	-	2	2	2	2	2	3
CO2	3	-	3	3	-	2	2	2	3	2	3
CO3	3	-	3	3	-	2	-	2	3	2	3
CO4	3	-	3	3	-	2	3	2	3	2	3
CO5	3	2	3	3	-	2	3	2	3	2	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Physical Pharmaceutics - I

Subject Code: (PT-316)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand the concept and principles followed in the use of different substances (solids, liquids and gases), their interaction with each other
CO-2	To develop knowledge solubility of different substances – its alteration and modification.
CO-3	To demonstrate the use of various physicochemical properties in the formulation development and evaluation of dosage forms.
CO-4	To apply knowledge on rheology and interfacial phenomena in the preparation of dosage form.
CO-5	To access the stability parameters of the products based on laws and order of reaction kinetics.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	2	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Organic Chemistry II

Subject Code: PT 314

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To solve the nomenclature of aromatic compounds by analyzing chemical structure and vice versa; and to relate the structures with their physical properties
CO-2	To synthesize aromatic compounds by different methods; and to interpret reactivity/stability of organic compounds
CO-3	To find the mechanism and orientation of important name reactions of aromatic compounds
CO-4	To apply the knowledge for the identification of aromatic compounds; and to appraise their medicinal and pharmaceutical Applications
CO-5	To explain the chemistry of fats and oils; and to evaluate the analytical constants of fats and oils

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	3	-	-	-	-	-	-	-	3
CO-2	3	3	3	2	-	-	-	-	-	-	3
CO-3	3	3	3	-	-	-	-	-	-	-	3
CO-4	3	3	3	-	-	-	-	-	-	-	3
CO-5	3	3	3	2	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Microbiology

Subject Code: (PT-319)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand about the importance of microbiology in pharmaceutical sciences and know the isolation and preservation methods for animal cell and transformed cell cultures, pure cultures including quantitative measurement of bacterial growth and cell cultures application in pharmaceutical industry.
CO-2	To understand about different microscope and microscopical techniques and Apply for the identification of bacteria using different staining method.
CO-3	To remember about the different sterilization methods, sterility indicators, and different disinfectant techniques, sterility testing and their factors affect on the fungi and virus depends on their proper study.
CO-4	To understand about the design of aseptic area and the different source of contamination present in aseptic area with the help of different microbial assay techniques.
CO-5	To apply different aseptic techniques like laminar air flow for take the preventive measurement from contamination and make aseptic or clean area for manufacturing as well as preservation of pharmaceutical products and the microbial stability of formulations.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	1	1	2	1	1	2	1	2	1	2	3
CO-2	1	1	1	3	1	2	1	2	2	2	3
CO-3	1	2	1	3	1	2	1	2	2	2	3
CO-4	2	2	2	2	1	2	1	2	2	2	3
CO-5	2	2	2	1	1	2	1	2	2	2	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Engineering

Subject Code: (PT-317)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand about the concept of flow of fluids on the basis of different theorems and the fluidity, pressure difference, energy loss with the help of different manometers and to get a concept about size reduction and size separation.
CO-2	To remember about the heat transfer by conduction, convection & radiation mechanisms including heat exchangers which is required for the drying, evaporation and distillation phenomenon for the pharmaceutical product.
CO-3	To know about the mixing process or techniques for different phases like solid and liquid mixing and to analyze different mathematical model used for the mixing techniques.
CO-4	To apply filtration and centrifugation techniques with the different pressure and forces required for the filtration, centrifugation phenomenon and know about the construction of instruments including different mathematical model used for those phenomenon.
CO-5	To understand about the materials used for the construction of different machineries and instrument in laboratory and industrial scale for the manufacturing as well as evaluation of dosage form.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	2	2	3	3	1	2	1	1	2	1	3
CO-2	2	2	3	3	1	2	1	2	2	1	3
CO-3	2	2	3	3	1	2	1	1	1	1	3
CO-4	2	2	3	3	1	2	1	1	1	1	3
CO-5	2	2	3	3	1	2	1	2	2	1	3



BENGAL SCHOOL OF TECHNOLOGY

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Sugandha, Delhi Road, Near Chinsurah RS, Hooghly-712 102, West Bengal

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E Mail: principal@bstpharmacy.in Website: www.bstpharmacy.in

Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacognosy and Phytochemistry I

Subject Code: PT412

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To explain the fundamentals of Pharmacognosy, quality controls of crude drugs and its involvement in society
CO-2	To illustrate the techniques in the cultivation and production of crude drugs
CO-3	To discover the modern evaluation techniques for the herbal drugs
CO-4	To describe the Basics of Plant metabolites and various techniques of traditional system of medicine
CO-5	To cite the crude drugs according to their morphological, microscopical, chemical parameters and their uses

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Physical Pharmaceutics - II

Subject Code: (PT-416)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand the various characteristics of colloidal dispersion and coarse dispersion and apply the knowledge in designing of pharmaceutical dosage forms
CO-2	To gain knowledge about different rheological or thixotropic behavior of different pharmaceutical dosage forms & deformation of solids and to demonstrate, modify & predict the designing of different pharmaceutical dosage forms.
CO-3	To get overview of chemical kinetics and to apply them for stability testing and determination of expiry date of formulations.
CO-4	To apply the knowledge and theories of emulsification and HLB method for preparation of emulsion.
CO-5	To understand various Preformulation parameter (particle size determination, derived properties of powder of drug molecules and excipient in the designing of dosage form.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Industrial Pharmacy-I

Subject Code: (PT-413)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To summarizes the different levels of understanding that can affect on medicinal products efficacy of pharmaceutical additives and different pharmaceutical dosage forms with an illustrative concept.
CO-2	To understand the various pharmaceutical dosage forms manufacturing techniques and a protocol to comply the data and to comprehend the complexity of the safety certifications that apply to pharmaceutical companies.
CO-3	To understand the development of pharmaceutical dosage forms and to differentiate solid, liquid and semisolid dosage forms and evaluate them for their quality and storage condition.
CO-4	To predict the preparation, packaging and quality control tests of parenteral products followed by concepts of master formula record, SOP, quality audit, quality review and distribution reports and articles as well as its application.
CO-5	To outline , and demonstrate the manufacturing process of cosmetics, aerosols and their calibration principles as well as its illustration and paraphrasing followed by breakdown of packaging materials science.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacology – II

Subject Code: PT 418

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO1	To define & interpret the basic knowledge of pharmacology and correlate the study in drug discovery process.
CO2	To explain the routes of drug administration and Pharmacokinetics (ADME) and apply the knowledge in clinical uses of drugs, doses, PK/PD interactions and contraindications for CNS and ANS drugs.
CO3	To outline and illustrate the various mechanisms of drug actions in organ system/sub cellular/ macromolecular levels along with the Combined effects and adverse effects of CNS and ANS drugs.
CO4	To describe organization, function, and neurohumoral transmission of Autonomic Nervous System and employ the knowledge to study the pharmacological actions of drugs acting on ANS.
CO5	To describe neurohumoral transmission of the Central Nervous System with reference to Excitatory and Inhibitory neurotransmitters and apply the basics in studying the pharmacological actions of drugs acting on the CNS.

CO-PO MATRICES

CO's ↓	PROGRAM OUTCOMES (PO's)										
	PO1 (Pharmacy Knowledge)	PO2 (Planning Abilities)	PO3 (Problem Analysis)	PO4 (Modern tool uses)	PO5 (Leadership Skills)	PO6 (Professional identity)	PO7 (Pharmaceutical Ethics)	PO8 (Communication)	PO9 (Pharmacist & society)	PO10 (Environment & sustainability)	PO11 (Lifelong learning)
CO1	3	-	2	1	-	-	3	1	2	1	3
CO2	3	-	3	1	-	-	3	1	2	1	3
CO3	3	-	3	1	-	-	2	1	2	1	3
CO4	3	-	2	1	-	-	2	1	2	1	3
CO5	3	-	2	1	-	-	2	1	2	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacognosy and Phytochemistry II

Subject Code: PT512

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To illustrate the basic plant metabolites and the various metabolic pathways to form secondary metabolites
CO-2	To describe the details of phytochemicals for various pharmacological uses
CO-3	To discover the modern extraction techniques, characterization of the herbal drugs and phytoconstituents
CO-4	To demonstrate isolation and identification of phytoconstituents
CO-5	To ascertain the modern evaluation techniques for the herbal drugs

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	2	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Medicinal Chemistry I

Subject Code: PT 513A

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To relate the physicochemical properties of drugs to their pharmacological action
CO-2	To solve the nomenclature of different categories of drugs by analyzing chemical structure and; to classify different categories of drugs; and to appraise their medicinal and pharmaceutical applications
CO-3	To find the mechanism of action, metabolic pathways, adverse effect and therapeutic value of different classes of drugs
CO-4	To determine the Structure Activity Relationship (SAR) of different classes of drugs
CO-5	To synthesize different classes of drugs.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	-	-	-	-	-	-	-	3
CO-2	3	1	1	-	-	-	-	-	-	-	3
CO-3	3	3	3	-	-	-	-	-	-	-	3
CO-4	3	3	3	-	-	-	-	-	-	-	3
CO-5	3	3	3	2	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Medicinal Chemistry II

Subject Code: PT 513B

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To relate the physicochemical properties of drugs to their pharmacological action
CO-2	To solve the nomenclature of different categories of drugs by analyzing chemical structure and; to classify different categories of drugs; and to appraise their medicinal and pharmaceutical applications
CO-3	To find the mechanism of action, metabolic pathways, adverse effect and therapeutic value of different classes of drugs
CO-4	To determine the Structure Activity Relationship (SAR) of different classes of drugs
CO-5	To synthesize different classes of drugs

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	-	-	-	-	-	-	-	3
CO-2	3	1	1	-	-	-	-	-	-	-	3
CO-3	3	3	3	-	-	-	-	-	-	-	3
CO-4	3	3	3	-	-	-	-	-	-	-	3
CO-5	3	3	3	2	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Jurisprudence

Subject Code: (PT-516)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To know about the pharmaceutical legislation including different committees and to Understand about objectives of the Drug and Cosmetics Act.
CO-2	To get knowledge about the code of pharmaceutical ethics with the importance of pharmacist role and pharmacists' oath and to remember Pharmacy Act with the education regulation & to get knowledge about Medical and toilet preparation Act.
CO-3	To understand the constitution and functions of narcotic & Psychotropic consultative committee and to remember the objectives of Drug and Magic remedies Act with the prohibition of certain advertisements, offences and penalties.
CO-4	To remember the objectives of prevention of cruelty to animal Act with ethical committee and guidelines and to know about drug price control order on bulk drugs and the sale price.
CO-5	To understand about the objectives and rules regulations of Medical Termination and Pregnancy and the all types of Intellectual property rights.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	2	1	1	2	2	1	3	1	3	2	2
CO-2	2	1	1	2	2	1	3	1	3	2	2
CO-3	2	1	1	2	2	1	3	1	3	2	2
CO-4	2	1	1	2	2	2	3	1	3	2	2
CO-5	2	1	2	2	2	2	3	1	3	2	2



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacology - II

Subject Code: (PT-518)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO1	To define & interpret about the physiology, pharmacokinetics, dosage, usage of the drugs acting on Endocrine system, Cardiovascular system and Urinary system.
CO2	To explain the mechanism of action of different classes of drugs acting on Endocrine system, Cardiovascular system and Urinary system.
CO3	To illustrate the Adverse Drug Reactions and drug interactions of different classes of drugs acting on Endocrine system, Cardiovascular system and Urinary system.
CO4	To describe mechanism of action, pharmacological action and adverse drug reactions of different classes of Non-Steroidal Anti-Inflammatory agents and Autacoids.
CO5	To describe the principle of bioassay and apply the basics in studying applications of bioassay.

CO-PO MATRICES

CO's ↓	PROGRAM OUTCOMES (PO's)										
	PO1 (Pharmacy Knowledge)	PO2 (Planning Abilities)	PO3 (Problem Analysis)	PO4 (Modern tool uses)	PO5 (Leadership Skills)	PO6 (Professional identity)	PO7 (Pharmaceutical Ethics)	PO8 (Communication)	PO9 (Pharmacist & society)	PO10 (Environment & sustainability)	PO11 (Lifelong learning)
CO1	3	-	3	1	-	-	2	2	3	2	3
CO2	3	-	3	1	-	-	1	2	3	2	3
CO3	3	-	3	1	-	-	1	2	3	2	3
CO4	3	-	3	1	-	-	1	2	3	2	3
CO5	3	-	3	2	-	-	3	2	3	2	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Herbal Drug Technology

Subject Code: PT-612

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To discover raw materials as sources of herbal drugs according to the alternative system of medicine.
CO-2	To describe different techniques of cultivation of herbal drug products.
CO-3	To appraise the quality and quantity of herbal drugs according to WHO and ICH guidelines.
CO-4	To compose and analyze herbal cosmetics and nutraceuticals.
CO-5	To explain patenting of herbal drugs and Practice of GMP.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	2	1	1	2	2	1	3	1	3	2	2
CO-2	2	1	1	2	2	1	3	1	3	2	2
CO-3	2	1	1	2	2	1	3	1	3	2	2
CO-4	2	1	1	2	2	2	3	1	3	2	2
CO-5	2	1	2	2	2	2	3	1	3	2	2



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Quality Assurance

Subject Code: (PT-611)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To summarize the different levels of pharmaceutical quality development and quality assurance such as cGMP, QC tests, literature and regulatory issues.
CO-2	To get knowledge cGMP perspectives and QA and QC departments' roles.
CO-3	To understand guidelines related to ICH, Q-series, SOP and Testing protocols. Once the pupil has completed a course will be able to differentiate, and demonstrate the value of personnel responsibilities, training, hygiene and maintenance of stores.
CO-4	To outline the concept of demands and approval, return handling, recall and waste management, request and assessment. Followed by concepts of master formula record, SOP, quality audit, quality review and recording of quality, distribution reports and articles as well as its application.
CO-5	To understand calibration principles, certification and validation concepts, validation significance and scale, forms of validation, master plan for validation.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	1	2	1	3	2	3	1	3
CO-2	3	2	3	1	2	1	3	3	3	2	3
CO-3	3	1	3	1	2	1	3	2	3	2	3
CO-4	3	3	3	1	2	2	3	2	3	3	3
CO-5	3	3	3	1	2	2	3	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Biopharmaceutics & Pharmacokinetics

Subject Code: (PT-611)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To implement biopharmaceutics and pharmacokinetics knowledge and skills in the pharmaceutical field for dose and dosage form production and problem-solving process.
CO-2	To understand the fundamental concepts in the pharmaceutical production, dose design and dose scheme and result analysis to maintain the environmental, social and ethical aspects of life.
CO-3	To describe the kinetics of drugs with the plasma concentration time data and to maintain the quality of the result they can modify the operation to maintain the ethical framework.
CO-4	To define and explain the principles and importance of drug products as they are bioavailable and bioequivalent as well as to outline the results by using the hyphenated tools to interpret the results.
CO-5	To interpret the data and to understand the basic principles of multi-compartmental & nonlinear Pharmacokinetic models.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	3	1	1	2	1	1	2	1	3
CO-2	3	1	3	3	1	2	3	1	3	3	3
CO-3	3	3	3	1	1	2	3	1	2	2	3
CO-4	3	1	3	3	1	2	1	1	2	1	3
CO-5	3	1	3	1	1	2	1	1	2	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmaceutical Biotechnology

Subject Code: (PT-619)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To explain various biotechnological or relevant terminologies relevant to pharmaceutical technology.
CO-2	To analyze the principles pivoting the biotechnological or related process.
CO-3	To evaluate the methodology for the working of biotechnological or related process.
CO-4	To apply the knowledge of biotechnological or related process relevant to pharmaceutical technology.
CO-5	To evaluate various biotechnological products relevant to pharmaceutical technology.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	1	1	1	1	1	2	3	1	3
CO-2	3	2	3	2	1	1	1	3	3	1	3
CO-3	3	3	3	3	1	1	1	2	3	1	3
CO-4	3	2	3	3	1	2	1	2	3	1	3
CO-5	3	2	3	3	1	2	1	1	3	1	3



BENGAL SCHOOL OF TECHNOLOGY

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E Mail: principal@bstpharmacy.in Website: www.bstpharmacy.in

Name of the Course: Bachelor of Pharmacy

Name of the Subject: Medicinal Chemistry III

Subject Code: PT 613

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To solve the nomenclature of different categories of drugs by analyzing chemical structure; to classify different categories of drugs; and to appraise their medicinal and pharmaceutical applications.
CO-2	To find the mechanism of action, metabolic pathways, adverse effect and therapeutic value of different classes of drugs.
CO-3	To determine the Structure Activity Relationship (SAR) of different classes of drugs.
CO-4	To synthesize different classes of drugs.
CO-5	To apply modern techniques like Quantitative Structure Activity Relationship (QSAR), Prodrug concept, Combinatorial Chemistry and Computer Aided Drug Design (CADD) in rational drug design.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustainability)	PO-11 (Life Long Learning)
CO-1	3	1	1	-	-	-	-	-	-	-	3
CO-2	3	3	3	-	-	-	-	-	-	-	3
CO-3	3	3	3	-	-	-	-	-	-	-	3
CO-4	3	3	3	2	-	-	-	-	-	-	3
CO-5	3	3	3	2	-	-	-	-	-	-	3



BENGAL SCHOOL OF TECHNOLOGY

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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacology - III

Subject Code: PT 618

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO1	To describe and determine the concept of various categories and their mechanism of action involving Respiratory system, Gastrointestinal tract, Immune System, Chemotherapeutics and chronopharmacology.
CO2	To analyze and evaluate the pharmacokinetic, dosage and therapeutic implications of the drugs acting on Respiratory system, Gastrointestinal tract, Immune System and Chemotherapeutics
CO3	To predict the mechanism of resistance and tolerance, drug-drug and drug-food interactions interfering with chronotherapy, Respiratory system, Gastrointestinal tract, Immune System and Chemotherapeutics.
CO4	To determine the side-effects and adverse effects of drugs interfering with chronotherapy, Respiratory system, Gastrointestinal tract, Immune System and Chemotherapeutics
CO5	To outline and design various preclinical toxicity studies.

CO-PO MATRICES

	PROGRAM OUTCOMES (PO's)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	-	1	1	-	3	2	1	2	1	3
CO2	3	-	2	1	-	3	2	1	2	1	3
CO3	3	-	2	1	-	3	2	1	2	1	3
CO4	3	-	2	1	-	3	2	1	1	1	3
CO5	3	-	2	1	-	3	2	1	2	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Industrial Pharmacy – II

Subject Code: (PT-716A)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To Know the process of pilot plant and scale up of pharmaceutical dosage forms.
CO-2	To understand the process of technology transfer from lab scale to commercial batch.
CO-3	To Know different Laws and Acts that regulate pharmaceutical industry.
CO-4	To understand about the quality management system and to apply QbD for selection of polymers & to introduce GLP.
CO-5	To Understand the approval process and regulatory requirements for drug products.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Novel Drug Delivery System

Subject Code: (PT-716B)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To get knowledge about various approaches for development of novel drug delivery systems.
CO-2	To understand the criteria for selection of drugs and polymers for the development of delivering system.
CO-3	To understand the criteria for the formulation and evaluation of novel drug delivery systems.
CO-4	To apply the criteria for selection of drugs and polymers for the development of Targeted Drug Delivery System.
CO-5	To understand the design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutical parameters.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharmacy Practice

Subject Code: (PT-718)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To understand the professional roles of pharmacists in community, hospital and clinical pharmacy areas.
CO-2	To know various drug distribution methods in a hospital, clinical and pharmaceutical care services.
CO-3	To understand the professional responsibilities of the pharmacists like patient counselling and
CO-4	To analyze & to monitor drug therapy of patient through medication chart review and clinical review.
CO-5	To understand the pharmacy stores management system, and inventory control.

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	2	3	3	1	1	1	2	3	1	3
CO-2	3	2	3	3	1	1	1	3	3	1	3
CO-3	3	1	3	3	1	1	1	2	3	1	3
CO-4	3	3	3	3	1	2	1	2	3	1	3
CO-5	3	3	3	3	1	2	1	1	3	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Instrumental Methods of Analysis

Subject Code: PT 711

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To illustrate the principle and instrumentation of spectroscopic and chromatographic techniques
CO-2	To analyze the interaction of matter with electromagnetic radiations; and to apply the knowledge in drug analysis by spectral Techniques
CO-3	To interpret chromatographic separation & analysis of drugs
CO-4	To create protocol for analysis of pharmaceutical substances by spectroscopic and chromatographic techniques
CO-5	To assess quantitative & qualitative analysis of drugs using various analytical instruments

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	1	3	-	-	-	-	-	-	3
CO-2	3	3	3	-	-	-	-	-	-	-	3
CO-3	3	3	3	3	-	-	-	-	-	-	3
CO-4	3	3	3	3	-	-	-	-	-	-	3
CO-5	3	3	3	3	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy (8 Sem.)

Name of the Subject: BIostatistics and Research Methodology

Subject Code: (PT-817)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To analyze the basic knowledge regarding Mean, Median, Mode-standard deviation pharmaceutical examples, pharmaceutical problems and their solving.
CO-2	To analyze & interpret of different types statistical experimental design like Parametric test: t-test (Sample, Pooled or Unpaired and Paired), ANOVA, (One way and Two way).
CO-3	To describe , methodology, outline & evaluate of Experimental Design Technique, plagiarism, Report writing and presentation of data, Protocol, Cohorts studies, Observational studies, Experimental studies.
CO-4	To prepare , solve analysis & application of software based Statistical Analysis Using Excel, SPSS, MINITAB®, DESIGN OF EXPERIMENTS, R - Online Statistical Software's to Industrial and Clinical trial approach.
CO-5	To design , analysis of Factorial Design: Definition, 2 ² , 2 ³ design. Advantage of factorial design & Optimization Techniques

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustainability)	PO-11 (Life Long Learning)
CO-1	3	-	3	3	-	2	2	1	1	1	2
CO-2	3	-	3	3	-	2	2	1	2	1	2
CO-3	3	-	3	2	3	2	3	1	3	3	2
CO-4	3	-	3	2	2	2	3	1	3	2	2
CO-5	3	-	3	2	-	2	2	1	1	1	2



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Pharma Marketing Management (Theory)

Subject Code: (PT-810A)

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To define & interpret their knowledge about different aspects of Marketing & Pharmaceutical market.
CO-2	To expand their knowledge regarding various aspects of Product decision.
CO-3	To judge about various aspects related to Promotion of products.
CO-4	To ascertain the different aspects of pharmaceutical marketing channels.
CO-5	To describe various aspects of pricing & Emerging concepts in Marketing

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	2	3	3	2	3	3	2	3	2	1	3
CO-2	2	3	3	2	3	3	2	3	2	1	3
CO-3	2	3	3	2	3	3	2	3	2	1	3
CO-4	2	3	3	2	3	3	2	3	2	1	3
CO-5	2	3	3	2	3	3	2	3	2	1	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Computer Aided Drug Design

Subject Code: PT 810B

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To develop knowledge on various techniques used in rational drug design process and its role in discovery of lead molecules
CO-2	To explain the concept of QSAR; and to apply various softwares for physicochemical property prediction
CO-3	To employ various molecular modeling softwares in the design of novel drug-like molecules; to apply pharmacophore modeling and docking techniques and to examine the binding interactions of ligand with molecular targets through de novo drug design or virtual screening
CO-4	To appraise the applications of bioinformatics, cheminformatics, and to apply ADME databases, chemical, biochemical and pharmaceutical databases in drug design
CO-5	To interpret the conformational analysis of molecules using molecular and quantum mechanics approach; and to determine the global conformational minima

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustainability)	PO-11 (Life Long Learning)
CO-1	3	1	1	-	-	-	-	-	-	-	3
CO-2	3	3	3	3	-	-	-	-	-	-	3
CO-3	3	3	3	3	-	-	-	-	-	-	3
CO-4	3	3	3	3	-	-	-	-	-	-	3
CO-5	3	3	3	3	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Advanced Instrumentation Techniques

Subject Code: PT 810C

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO-1	To illustrate the principle and instrumentation of analytical techniques (spectroscopy, chromatographic hyphenated, thermal and diffraction methods)
CO-2	To analyze the interaction of matter with electromagnetic radiations; and to apply the knowledge in drug analysis by spectral techniques
CO-3	To interpret calibration and validation of various analytical instruments
CO-4	To assess analysis of drugs employing various analytical instruments
CO-5	To explain principle, application, and procedure employed in radio-immuno assay and extraction techniques

CO-PO MATRICES

PROGRAM OUTCOMES (PO's)

CO'S	PROGRAM OUTCOMES (PO's)										
	PO-1 (Pharmacy Knowledge)	PO-2 (Planning Abilities)	PO-3 (Problem Analysis)	PO-4 (Modern tool uses)	PO-5 (Leadership Skill)	PO-6 (Professional Identity)	PO-7 (Pharmaceutical Ethics)	PO-8 (Communication)	PO-9 (Pharmacist & Society)	PO-10 (Environment & Sustain ability)	PO-11 (Life Long Learning)
CO-1	3	1	1	3	-	-	-	-	-	-	3
CO-2	3	3	3	-	-	-	-	-	-	-	3
CO-3	3	3	3	3	-	-	-	-	-	-	3
CO-4	3	3	3	3	-	-	-	-	-	-	3
CO-5	3	1	1	3	-	-	-	-	-	-	3



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Name of the Course: Bachelor of Pharmacy

Name of the Subject: Social and Preventive Pharmacy

Subject Code: PT-818

COURSE OUTCOME (CO)	OBJECTIVES (DESCRIPTIONS)
CO1	To analyze the various health related issues affecting the society on national and international aspect.
CO2	To conclude about the preventive and control measures to be adopted for healthy society.
CO3	To apply the knowledge of various schemes for welfare of the society.
CO4	To recognize health hazards and to design programme healthcare development.
CO5	To develop healthy community in rural and urban areas.

CO-PO MATRICES

CO's ↓	PROGRAM OUTCOMES (PO's)										
	PO1 (Pharmacy Knowledge)	PO2 (Planning Abilities)	PO3 (Problem Analysis)	PO4 (Modern tool uses)	PO5 (Leadership Skills)	PO6 (Professional identity)	PO7 (Pharmaceutical Ethics)	PO8 (Communication)	PO9 (Pharmacist & society)	PO10 (Environment & sustainability)	PO11 (Lifelong learning)
CO1	3	-	3	3	-	3	3	3	3	3	3
CO2	3	-	2	3	-	2	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	-	2	2	3	3	3	2	3	3	3