



SS INSTITUTE OF PHARMACY

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Affiliated to the Tamilnadu Dr. M.G.R. Medical University,
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PO'S FOR B.PHARMACY PROGRAM

PO 01	Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
PO 02	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.
PO 03	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.
PO 04	Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
PO 05	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.
PO 06	Professional Identity: Understand, analyse and communicate the value of their Professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
PO 07	Pharmaceutical Ethics: Honour personal values and apply ethical principles in Professional and social contexts. Demonstrate behaviour 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.
PO 08	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.



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PO 09	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.
PO 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.
PO 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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B.PHARM I YEAR

BP101T - Course Name C 111 – Human Anatomy and Physiology-I Theory	
NAAC CODE	STATEMENTS
C 111.1	Through this course, students will comprehend the homeostatic mechanisms that maintain the balance within the human body
C 111.2	It provides foundational knowledge about the structure and functioning of the human body.
C 111.3	Students will gain insight into the mechanisms of drug action by studying the basic structure of the human body.
C 111.4	The course will help students understand the coordinated functioning of human organs.
C 111.5	This course enables students to correlate Human Anatomy & Physiology with other biomedical sciences.

C111– Human Anatomy and Physiology-I (Theory)											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 111.1	1	-	-	-	-	1	2	2	2	1	3
C 111.2	1	2	-	-	-	3	2	1	3	1	2
C 111.3	3	2	3	2	2	3	2	3	3	-	3
C 111.4	2	2	-	-	-	2	-	2	2	-	3
C 111.5	3	2	3	2	1	3	1	2	3	-	2




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BP102T - Course Name C 112 – Pharmaceutical Analysis I – Theory

NAAC CODE	STATEMENTS
C 112.1	It offers an overview of errors in laboratory settings and methods for minimizing them
C 112.2	It covers areas such as new concepts, methods, techniques, theory, skill development, and the upgradation of educational technology to keep pace with the evolving landscape of Technical Education.
C 112.3	It enhances and updates knowledge related to general research capabilities.
C 112.4	Develop analytical skills in both established and emerging technologies.
C 112.5	This course provides an opportunity to acquire knowledge about current technological developments in relevant fields.

C112– Pharmaceutical Analysis- I (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 112.1	-	1	2	3	-	1	-	-	2	1	3
C 112.2	1	-	3	3	1	2	-	1	2	1	2
C 112.3	3	3	2	3	2	3	1	2	3	1	3
C 112.4	3	1	-	2	-	-	-	-	2	-	2
C 112.5	3	1	-	2	-	1	-	-	2	-	3



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BP103T - Course Name C 113 – Pharmaceutics I–Theory

NAAC CODE	STATEMENTS
C 113.1	To understand the concepts related to historical background, development of profession of pharmacy, dosage forms, prescription, posology
C 113.2	To understand the concepts about pharmaceutical calculations, powders, basic knowledge of liquid dosage form.
C 113.3	To discuss the concepts and principle involved in the compounding and dispensing of liquid dosage forms for installation, emulsions and suspensions.
C 113.4	To apply the principles and procedures necessary for preparing suppositories and pharmaceutical incompatibilities.
C 113.5	To elucidate the process of compounding & concepts of semi solid dosage form.

C113– Pharmaceutics I (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 113.1	3	-	-	-	-	3	2	1	2	-	3
C 113.2	2	1	3	1	-	3	2	1	3	-	2
C 113.3	3	2	3	2	1	3	2	1	3	-	3
C 113.4	2	-	2	1	-	2	-	-	2	1	1
C 113.5	3	1	-	2	-	2	1	1	2	1	2



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BP104T - Course Name C 114 – Pharmaceutical Inorganic Chemistry –Theory

NAAC CODE	STATEMENTS
C 114.1	To understand the sources of impurities in inorganic drugs and pharmaceuticals, and the methods used to identify these impurities.
C 114.2	To examine the importance of various extracellular and intracellular ions in maintaining the physiological functions of the body.
C 114.3	To grasp the medicinal and pharmaceutical significance of inorganic compounds.
C 114.4	To understand the concepts of miscellaneous compounds including expectorants, emetics, haematinics, poison & antidotes.
C 114.5	To explore the role of radiopharmaceuticals in the field of pharmacy.

C114– Pharmaceutical inorganic chemistry (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 114.1	1	-	2	-	-	2	-	-	2	2	2
C 114.2	2	2	1	-	-	2	1	-	2	1	1
C 114.3	3	1	2	1	-	2	-	2	3	-	2
C 114.4	2	1	1	-	1	1	1	2	2	-	3
C 114.5	3	1	2	3	-	3	1	1	3	2	2



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BP201T - Course Name C 125 -Human Anatomy and Physiology II – Theory	
NAAC CODE	STATEMENTS
C 125.1	By studying this course, students will be able to correlate Human Anatomy and Physiology with gross morphology, structure, and functions of various systems.
C 125.2	It provides foundational knowledge about the structure and physiology of the human body.
C 125.3	Students will gain an understanding of the respiratory system and urinary system and their functions in the human body.
C 125.4	By studying this course, students will be able to comprehend the coordinated functioning of the organs & endocrine system in the human body.
C 125.5	Through this course, students will understand the concepts about reproductive system and basic knowledge about genetics.

C125– Human Anatomy and Physiology II (Theory)											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 125.1	1	-	-	1	1	2	-	3	3	1	2
C 125.2	3	1	1	2	-	3	-	1	2	-	1
C 125.3	2	-	-	-	1	1	-	-	2	1	3
C 125.4	3	1	2	-	1	2	1	1	3	1	1
C 125.5	2	-	2	2	-	3	1	-	3	-	2



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BP202T - Course Name C 126 -Pharmaceutical OrganicChemistryI– Theory

NAAC CODE	STATEMENTS
C 126.1	The subject covers the classification and nomenclature of organic compounds.
C 126.2	It also addresses structural isomerism, intermediate formation in reactions, important physical properties, reactions, and methods of preparation for these compounds.
C 126.3	It includes a study of SN1, SN2, E1, and E2 reactions, as well as free radical addition reactions of conjugated dienes.
C 126.4	The subject explores the chemistry of carbonyl compounds, including named reactions and their mechanisms.
C 126.5	It examines carboxylic acids, the effects of substituents on acidity, and the structures of organic compounds.

C126– Pharmaceutical Organic Chemistry I (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 126.1	1	-	-	-	-	2	-	-	2	1	2
C 126.2	2	1	1	-	-	1	-	-	2	-	3
C 126.3	3	1	1	-	1	2	-	-	3	-	2
C 126.4	2	-	1	-	-	1	-	1	2	1	3
C 126.5	1	-	-	-	-	2	-	-	3	-	2



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BP203T - Course Name C 127 -Biochemistry– Theory

NAAC CODE	STATEMENTS
C 127.1	This course covers the chemistry of biomolecules and the principles of bioenergetics.
C 127.2	It explores the metabolism of carbohydrates under both physiological and pathological conditions.
C 127.3	The subject also examines the metabolic pathways of lipids and amino acids in normal and diseased states.
C 127.4	It discusses the genetic organization of the mammalian genome.
C 127.5	The course emphasizes the importance of enzymes and their inhibitors in diagnostic and therapeutic applications.

C127– Biochemistry (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 127.1	1	1	-	1	-	1	-	-	2	-	3
C 127.2	2	1	-	1	-	2	-	1	2	1	2
C 127.3	3	2	1	-	1	1	2	1	3	-	3
C 127.4	3	1	-	-	-	3	1	-	2	-	2
C 127.5	2	-	-	1	-	2	-	-	1	-	1



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BP204T - Course Name C 128 - Pathophysiology – Theory

NAAC CODE	STATEMENTS
C 128.1	Understand the various etiology and basic pathophysiological mechanisms of different diseases.
C 128.2	Identify the signs and symptoms associated with different types of diseases.
C 128.3	Comprehend the complications arising from different diseases.
C 128.4	Apply knowledge of relevant pathology in various conditions with reference to its pharmacological applications.
C 128.5	Gain detailed information about infectious diseases& sexually transmitted diseases.

C128– Pathophysiology (Theory)

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 128.1	2	-	2	1	1	2	-	1	2	1	3
C 128.2	3	1	-	2	-	1	-	2	3	1	2
C 128.3	1	-	-	-	-	2	-	1	2	-	2
C 128.4	2	1	-	1	1	1	1	-	3	-	3
C 128.5	3	-	1	2	1	2	-	1	2	-	2



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B.PHARM II YEAR

BP301T - Course Name C 211 - Pharmaceutical Organic Chemistry II – Theory	
NAAC CODE	STATEMENTS
C 211.1	Learn how to write chemical reactions, identify the names of reactions, and understand the orientation of reactions along with the reactivity and stability of compounds.
C 211.2	Gain a comprehensive understanding of how to write chemical reactions, name reactions, and analyze the orientation, reactivity, and stability of compounds.
C 211.3	Acquire knowledge about the properties of fats and oils, including their structure, behavior, and applications.
C 211.4	Understand the sources, properties, reactions, and medicinal uses of polycyclic hydrocarbons.
C 211.5	Develop an understanding of the stereochemical properties of cycloalkanes and the methods used to prepare them.

C211– Pharmaceutical Organic Chemistry II – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 211.1	3	2	-	-	-	1	-	-	1	1	2
C 211.2	2	1	-	-	1	-	-	1	1	-	2
C 211.3	3	1	-	1	-	-	-	1	2	1	3
C 211.4	2	2	1	-	-	1	-	-	1	1	2
C 211.5	3	2	1	1	-	1	-	1	2	1	3



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BP302T - Course Name C 212 - Physical Pharmaceutics I – Theory	
NAAC CODE	STATEMENTS
C 212.1	Gain an understanding of the various physicochemical properties of drug molecules and how they influence the design of dosage forms.
C 212.2	Demonstrate the application of various physicochemical properties in the development and evaluation of dosage forms.
C 212.3	Know about the concept of surface and interfacial tension and their influence on designing dosage forms
C 212.4	Understand the principles of complexation and the factors that affect the stability of complexes.
C 212.5	Recognize the importance of pH and tonicity in the formulation of dosage forms.

C212 – Physical Pharmaceutics I – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 212.1	3	-	1	1	-	1	-	1	2	-	3
C 212.2	2	1	1	-	-	-	-	1	1	-	2
C 212.3	2	2	1	1	-	2	-	2	1	-	3
C 212.4	3	1	-	1	1	-	-	1	2	-	2
C 212.5	2	2	1	1	-	2	1	-	2	1	3



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BP303T - Course Name C 213 - Pharmaceutical Microbiology – Theory

NAAC CODE	STATEMENTS
C 213.1	Understand the methods for identification, cultivation, and preservation of various microorganisms.
C 213.2	Learn the importance and implementation of sterilization in pharmaceutical processing and industry.
C 213.3	Acquire knowledge about sterility testing of pharmaceutical products.
C 213.4	Perform microbiological standardization of pharmaceuticals.
C 213.5	Understand cell culture technology and its applications in pharmaceutical industries.

C213 - Pharmaceutical Microbiology – Theory

	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 213.1	3	2	1	3	-	1	-	2	-	-	2
C 213.2	3	1	2	3	2	2	2	-	2	1	3
C 213.3	2	1	-	-	-	1	-	-	2	-	2
C 213.4	1	2	1	-	-	-	-	-	2	1	3
C 213.5	3	2	3	3	-	3	1	-	3	-	3



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BP303T - Course Name C 213 - Pharmaceutical Microbiology – Theory	
NAAC CODE	STATEMENTS
C 213.1	Understand the methods for identification, cultivation, and preservation of various microorganisms.
C 213.2	Learn the importance and implementation of sterilization in pharmaceutical processing and industry.
C 213.3	Acquire knowledge about sterility testing of pharmaceutical products.
C 213.4	Perform microbiological standardization of pharmaceuticals.
C 213.5	Understand cell culture technology and its applications in pharmaceutical industries.

C213 - Pharmaceutical Microbiology – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 213.1	3	2	1	3	-	1	-	2	-	-	2
C 213.2	3	1	2	3	2	2	2	-	2	1	3
C 213.3	2	1	-	-	-	1	-	-	2	-	2
C 213.4	1	2	1	-	-	-	-	-	2	1	3
C 213.5	3	2	3	3	-	3	1	-	3	-	3




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BP304T - Course Name C 214 - Pharmaceutical Engineering – Theory	
NAAC CODE	STATEMENTS
C 214.1	Understand the concept of flow of fluids, and explore different types of equipment used in size reduction and separation, including their principles, construction, functioning, benefits, and limitations.
C 214.2	Know applications & Heat transfer mechanisms, explore different types of equipment used in evaporation and basic principles and methodology of distillation methods
C 214.3	Explore different types of equipment used in drying & mixing including their theories, principles, construction, functioning, benefits, and limitations.
C 214.4	Explore different types of equipment used in filtration & centrifugation including their theories, principles, construction, functioning, benefits, and limitations.
C 214.5	To learn about materials of pharmaceutical plant construction, Corrosion and its prevention:

C214 - Pharmaceutical Engineering – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 214.1	3	1	2	3	1	2	-	-	2	1	1
C 214.2	2	1	-	3	-	1	-	-	2	-	2
C 214.3	3	2	2	2	1	-	-	-	1	1	3
C 214.4	3	-	2	2	1	-	1	-	1	1	2
C 214.5	2	1	-	3	-	1	-	-	2	1	3



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BP401T - Course Name C 225 - Pharmaceutical Organic Chemistry III– Theory	
NAAC CODE	STATEMENTS
C 225.1	Imparts knowledge on the stereochemical aspects of organic compounds, including optical isomerism, racemic mixtures, and the resolution of racemic mixtures.
C 225.2	Know about geometrical isomerism in organic compounds and their reactions
C 225.3	Explain the naming and nomenclature, properties, and therapeutic uses of heterocyclic compounds.
C 225.4	Understand named reactions and their mechanisms.
C 225.5	Know the reactions of synthetic importance

C225 - Pharmaceutical Organic Chemistry III– Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 225.1	1	-	-	-	-	1	-	1	1	-	3
C 225.2	2	-	1	1	-	2	1	-	-	1	2
C 225.3	3	1	-	1	-	1	1	-	1	1	3
C 225.4	3	1	-	-	-	1	-	-	2	1	1
C 225.5	2	-	2	1	1	1	-	-	2	-	3



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BP402T - Course Name C 226 - Medicinal Chemistry I-Theory	
NAAC CODE	STATEMENTS
C 226.1	Learn the history and properties of drugs
C 226.2	Understand drug metabolic pathways, their adverse effects, and therapeutic value.
C 226.3	Apply knowledge of medicinal compounds and their mechanisms of action in the treatment of various diseases.
C 226.4	Gain insight into the structure-activity relationship (SAR) of different classes of drugs.
C 226.5	Acquire knowledge about diseases and learn to write the chemical synthesis of select drugs.

C 226 - Medicinal Chemistry I-Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 226.1	3	1	1	-	-	1	-	-	1	1	2
C 226.2	2	2	1	-	-	2	-	1	-	1	3
C 226.3	3	1	-	1	-	1	1	-	1	-	2
C 226.4	2	-	1	-	1	-	-	2	1	1	3
C 226.5	3	1	-	1	-	1	2	1	-	1	2



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BP403T - Course Name C 227 - Physical Pharmaceutics II–Theory	
NAAC CODE	STATEMENTS
C 227.1	Acquire foundational knowledge of pharmaceutical colloids.
C 227.2	Gain an understanding of rheological concepts and deformation of solids
C 227.3	Acquire foundational knowledge of pharmaceutical coarse dispersions
C 227.4	Understand the pharmaceutical applications of various micromeritic properties in formulation science.
C 227.5	Learn the principles of chemical kinetics and apply them to stability testing and determining the shelf life of formulations.

C 227 - Physical Pharmaceutics II–Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 227.1	2	2	-	-	-	1	-	1	-	1	2
C 227.2	2	1	1	-	-	1	1	-	1	1	3
C 227.3	3	1	2	1	-	2	1	-	2	-	3
C 227.4	2	-	1	-	1	-	1	1	-	1	2
C 227.5	3	-	3	1	-	1	-	-	1	1	3



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BP404T - Course Name C 228-Pharmacology I –Theory	
NAAC CODE	STATEMENTS
C 228.1	To learn about the history of pharmacology and pharmacokinetic parameters
C 228.2	To know about pharmacodynamics parameters, adverse drug reactions, drug interactions (pharmacokinetic and pharmacodynamic), and the processes of drug discovery
C 228.3	Learn about drugs acting on PNS system
C 228.4	Learn about drugs acting on CNS system
C 228.5	Learn about Psychopharmacological agents, Drug addiction, drug abuse, tolerance and dependence.

C 228-Pharmacology I –Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 228.1	3	1	-	1	-	1	-	1	1	1	3
C 228.2	2	1	-	1	-	1	-	2	2	1	2
C 228.3	3	1	2	1	-	1	-	1	1	2	3
C 228.4	1	2	-	1	1	-	1	-	-	-	2
C 228.5	3	-	-	-	1	-	-	1	-	1	2



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and The Directorate of Medical Education, Chennai.

BP405T - Course Name C 229 - Pharmacognosy and Phytochemistry I –Theory	
NAAC CODE	STATEMENTS
C 229.1	Gain knowledge of classification used for the quality control of herbal drugs.
C 229.2	To know the techniques in the cultivation and production of crude drugs
C 229.3	Understand the concept of applications of plant tissue culture in pharmacognosy and the concept of secondary metabolites
C 229.4	To know about the role of pharmacognosy in various systems of medicine
C 229.5	To learn biological source, chemical nature and uses of drugs of natural origin of certain classes of drugs

C 229 - Pharmacognosy and Phytochemistry I –Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 229.1	2	1	-	1	-	1	1	-	1	-	2
C 229.2	3	1	-	1	-	1	-	2	1	-	3
C 229.3	1	2	1	-	2	-	-	-	-	1	2
C 229.4	2	-	-	-	-	2	1	-	1	1	3
C 229.5	3	1	-	-	-	1	-	-	1	-	2



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B.PHARM III YEAR

BP501T - Course Name C 311 - Medicinal Chemistry II –Theory	
NAAC CODE	STATEMENTS
C 311.1	Understand the chemistry of drugs in relation to their pharmacological activity.
C 311.2	Learn about drug metabolic pathways, their adverse effects, and therapeutic value.
C 311.3	Apply knowledge of medicinal compounds and their mechanisms of action in the treatment of various diseases.
C 311.4	Gain insight into the structure-activity relationship (SAR) of different classes of drugs.
C 311.5	Develop the ability to write the chemical synthesis of selected drugs.

C 311 - Medicinal Chemistry II –Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 311.1	2	2	2	1	-	-	-	-	-	-	2
C 311.2	2	1	3	-	-	-	-	-	-	-	2
C 311.3	3	2	3	-	-	-	-	-	-	1	3
C 311.4	3	2	2	-	-	-	-	-	-	-	2
C 311.5	2	2	1	-	-	-	-	-	-	-	3



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BP502T - Course Name C 312 - Industrial Pharmacy I –Theory	
NAAC CODE	STATEMENTS
C 312.1	To understand preformulation considerations in the development of solid, liquid oral and parenteral dosage forms and its impact on stability of dosage forms.
C 312.2	To Know the manufacturing techniques and quality control of the tablets and liquid orals dosage forms
C 312.3	To Know the manufacturing techniques and quality control of capsules and pellets
C 312.4	To learn about the formulation considerations and quality control of capsules and pellets
C 312.5	Gain an understanding about the formulation and evaluation of cosmetics and aerosols and packaging material science

C 312 - Industrial Pharmacy I –Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C312.1	3	2	1	1	1	1	1	2	3	2	3
C312.2	3	2	3	2	1	1	1	2	1	2	3
C312.3	3	3	3	2	2	1	2	2	3	3	3
C312.4	3	1	2	3	2	1	1	2	3	2	3
C312.5	3	3	3	3	1	1	2	1	2	1	3



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BP503T - Course Name C 313 - Pharmacology II–Theory	
NAAC CODE	STATEMENTS
C 313.1	Acquire information about the treatment of cardiovascular complications
C 313.2	Acquire knowledge of Pharmacology of drugs acting on urinary system
C 313.3	Understand the roles of various endocrine hormones, their pathological significance, and the drugs used for treatment
C 313.4	Learn about the pharmacology of autacoids.
C 313.5	Learn about bioassays and their importance in analyzing the potency of compounds.

C 313 - Pharmacology II–Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 313.1	3	-	2	-	-	2	-	-	-	-	3
C 313.2	3	-	2	-	-	2	-	-	-	-	3
C 313.3	3	-	2	-	-	2	-	-	-	-	3
C 313.4	2	-	1	-	-	2	-	-	-	-	2
C 313.5	3	-	3	-	-	2	-	-	-	-	2



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BP504T - Course Name C 314 -Pharmacognosy a nd Phytochemistry II – Theory	
NAAC CODE	STATEMENTS
C 314.1	Identify and understand the metabolic pathways in plants
C 314.2	Know about composition, chemistry & chemical classes, bio sources, therapeutic uses and commercial applications of secondary metabolites
C 314.3	Learn the concept of Isolation, Identification and Analysis of Phytoconstituents
C 314.4	Gain an understanding about Industrial production, estimation and utilization of certain phytoconstituents
C 314.5	Understand about various techniques of extraction of phytoconstituents

C 314 -Pharmacognosy and Phytochemistry II – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 314.1	3	2	1	-	-	-	-	-	-	-	3
C 314.2	3	1	2	-	-	-	-	-	-	-	3
C 314.3	3	3	3	2	-	-	-	-	-	-	3
C 314.4	3	-	-	3	-	-	-	-	-	-	3
C 314.5	3	2	2	3	-	-	-	-	-	-	3



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BP505T - Course Name C 315 - Pharmaceutical Jurisprudence – Theory	
NAAC CODE	STATEMENTS
C 315.1	Understand the drugs and cosmetics act.
C 315.2	Know about schedules, sales and labeling of drugs and administration of act and rules
C 315.3	Learn about the Pharmacy Acts, Medicinal and Toilet Preparation Act and Narcotic Drugs and Psychotropic substances act
C 315.4	Gain an understanding about Drugs and Magic Remedies Act, Prevention of Cruelty to animals Act and National Pharmaceutical Pricing Authority
C 315.5	Understanding the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.

C 315 - Pharmaceutical Jurisprudence – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 315.1	2	-	2	-	2	-	3	1	2	-	3
C 315.2	3	-	2	-	3	2	3	2	2	-	3
C 315.3	3	1	2	-	2	-	2	-	2	2	3
C 315.4	3	1	3	-	3	-	2	-	1	1	3
C 315.5	2	1	2	-	2	-	3	-	2	-	3



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BP601T Course outcome C 326 - Medicinal Chemistry III–Theory	
NAAC CODE	STATEMENTS
C 326.1	Gain knowledge of the chemistry of drugs in relation to their biological activity.
C 326.2	Learn about the metabolism, adverse effects, and therapeutic value of drugs.
C 326.3	Explore the structure-activity relationship (SAR) of various classes of drugs.
C 326.4	Develop the ability to write the chemical synthesis of selected drugs.
C 326.5	Understand the importance of drug design and explore different techniques used in drug design.

C 326 - Medicinal Chemistry III–Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 326.1	3	2	1	-	-	-	-	-	-	-	3
C 326.2	3	2	1	-	-	-	-	-	-	-	3
C 326.3	3	3	2	-	-	-	-	-	-	-	3
C 326.4	3	-	-	-	-	-	-	-	-	-	2
C 326.5	2	3	2	-	-	-	-	-	-	-	3



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BP602T Course outcome C 327 - Pharmacology III– Theory	
NAAC CODE	STATEMENTS
C 327.1	Understanding of the Pharmacology of drugs acting on Respiratory system and GI tract
C 327.2	Comprehend the knowledge of principles of chemotherapy
C 327.3	Explore the mechanism of drug action and its relevance in the treatment of different infectious diseases
C 327.4	Analyze the challenges associated with drugs used in the treatment of cancer and understand the immunopharmacology
C 327.5	Gain knowledge of the principles of toxicology, understand the treatment of various poisonings and the concept of chrono pharmacology.

C 327 - Pharmacology III– Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 327.1	3	2	1	-	-	-	-	-	-	-	3
C 327.2	3	2	2	-	-	-	-	-	-	-	3
C 327.3	3	2	3	-	-	-	-	-	-	1	2
C 327.4	2	2	2	-	-	-	-	-	-	-	3
C 327.5	3	2	3	-	-	-	-	-	-	2	3



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BP603T Course outcome C 328 - Herbal Drug Technology–Theory	
NAAC CODE	STATEMENTS
C 328.1	Understand the pharmacognostical information of the sources of raw materials used in herbal drugs.
C 328.2	Learn the importance of nutraceuticals, herb-drug interactions, and herb-food interactions.
C 328.3	Understand the significance of herbal formulations and the excipients used in herbal cosmetic formulations.
C 328.4	Gain awareness of WHO and ICH guidelines along with patent regulatory requirements
C 328.5	Be aware of various herbal industries, GMP practices, the Indian system of medicine, and Schedule-T drugs.

C 328 - Herbal Drug Technology–Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 328.1	3	1	2	-	-	-	-	-	-	2	3
C 328.2	3	2	2	-	-	-	-	-	-	2	3
C 328.3	3	2	1	-	-	-	-	-	-	1	3
C 328.4	2	2	2	-	-	-	3	-	2	1	3
C 328.5	2	2	1	-	-	-	2	-	1	1	2



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BP604T Course outcome C 329 - Bio pharmaceuticals and Pharmacokinetics –Theory	
NAAC CODE	STATEMENTS
C 329.1	Understand the concepts and significance of biopharmaceutics and pharmacokinetics.
C 329.2	Analyze plasma drug concentration-time data to calculate pharmacokinetic parameters.
C 329.3	Learn the importance of bioavailability and bioequivalence.
C 329.4	Understand key pharmacokinetic parameters and their applications.
C 329.5	Identify nonlinearity in pharmacokinetics and estimate relevant parameters.

C 329 - Bio pharmaceuticals and Pharmacokinetics –Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 329.1	3	2	2	-	-	-	-	-	-	-	3
C 329.2	2	2	1	-	-	-	-	-	-	-	2
C 329.3	2	2	1	-	-	-	-	-	-	-	2
C 329.4	3	1	-	-	-	-	-	-	-	-	3
C 329.5	3	3	2	-	-	-	-	-	-	-	3



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BP605T Course outcome C 3210 - Pharmaceutical Biotechnology – Theory	
NAAC CODE	STATEMENTS
C 3210.1	Learn enzyme immobilization, microbial transformations, and biosensors.
C 3210.2	Gain knowledge of recombinant DNA technology and recombinant product preparation.
C 3210.3	Know about immunological products, vaccines, and monoclonal antibody preparation.
C 3210.4	Understand genetic organization and techniques like ELISA, Southern blot, and Western blot.
C 3210.5	Explore fermenter design, fermentable products, and blood product preparation.

C 3210 - Pharmaceutical Biotechnology – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 3210.1	2	2	2	-	-	-	-	-	-	-	2
C 3210.2	2	2	3	-	-	-	-	-	-	-	3
C 3210.3	3	2	1	2	-	-	-	-	-	-	3
C 3210.4	3	2	3	3	-	-	-	-	-	-	2
C 3210.5	2	1	2	3	-	-	-	-	-	-	1



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B.PHARM IV YEAR

BP701T - Course outcome C 411 - Instrumental Methods of Analysis – Theory	
NAAC CODE	STATEMENTS
C 411.1	Understand the principles and instrumentation of UV spectroscopy techniques and fluorimetry
C 411.2	Understand the principles and instrumentation of IR spectroscopy techniques and flame photometry, Atomic absorption spectroscopy and Nepheloturbidometry
C 411.3	Learn the principles and instrumentation of chromatography techniques.
C 411.4	Explore the principles and instrumentation of gas chromatography and HPLC techniques.
C 411.5	Know the principles and instrumentation of Ion exchange chromatography, Gel chromatography and Affinity chromatography

C 411 - Instrumental Methods of Analysis – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 411.1	3	2	1	3	1	1	-	-	2	1	3
C 411.2	2	2	3	3	1	-	-	-	1	1	2
C 411.3	3	1	-	3	-	-	1	-	1	2	3
C 411.4	2	3	3	3	1	-	-	-	1	2	2
C 411.5	3	1	2	2	1	1	-	1	-	-	3



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BP702T - Course outcome C 412 - Industrial Pharmacy II–Theory	
NAAC CODE	STATEMENTS
C 412.1	Learn the pilot plant process and scale-up of pharmaceutical dosage forms.
C 412.2	Understand technology transfer from lab scale to commercial batches.
C 412.3	Learn the principles and instrumentation of chromatography techniques.
C 412.4	Explore the principles and instrumentation of gas chromatography and HPLC techniques.
C 412.5	Know the principles and instrumentation of Ion exchange chromatography, Gel chromatography and Affinity chromatography

C 412 - Industrial Pharmacy II–Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 412.1	2	-	-	1	-	1	-	-	2	1	3
C 412.2	2	2	1	3	-	1	1	-	1	1	2
C 412.3	3	1	3	3	1	-	-	1	-	-	3
C 412.4	2	1	-	3	1	-	1	1	1	1	2
C 412.5	3	2	1	2	-	1	-	-	2	1	3



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BP703T - Course outcome C 413 - Pharmacy Practice– Theory	
NAAC CODE	STATEMENTS
C 413.1	Know about Hospital and its organization, Hospital Pharmacy and its organization and adverse drug reactions (ADRs).
C 413.2	Understand drug distribution methods and Monitor patient drug therapy, including medication chart reviews, clinical reviews.
C 413.3	Know about PTC, explore drug information services, conduct patient counselling
C 413.4	Explore Budget preparation and implementation, Clinical Pharmacy and Over the counter (OTC) sales
C 413.5	Understand about pharmacy store management, inventory control in hospitals, Investigational use of drugs and Interpretation of Clinical Laboratory Tests.

C 413 - Pharmacy Practice– Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 413.1	3	1	2	2	1	3	1	2	1	-	3
C 413.2	3	2	3	3	2	2	-	2	2	1	2
C 413.3	2	1	2	2	1	2	2	1	2	-	3
C 413.4	2	1	-	-	1	-	-	1	2	1	2
C 413.5	3	2	1	1	-	1	-	1	2	-	3



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BP704T - Course outcome C 414 - Novel Drug Delivery System – Theory	
NAAC CODE	STATEMENTS
C 414.1	Understand controlled drug delivery systems, including diffusion, dissolution, polymers, and advanced formulations.
C 414.2	Learn microencapsulation techniques, methods of preparation, and the buccal drug delivery system and implantable drug delivery systems
C 414.3	Know about Transdermal Drug Delivery Systems, Gastroretentive drug delivery systems and Nasopulmonary drug delivery system
C 414.4	Gain an understanding of concept of targeted drug delivery system.
C 414.5	Learn about ocular, and intrauterine drug delivery systems.

C 414 - Novel Drug Delivery System – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 414.1	3	2	1	2	-	1	-	1	2	-	3
C 414.2	2	2	3	3	1	2	-	2	2	1	3
C 414.3	3	1	2	3	1	2	1	3	3	-	2
C 414.4	3	2	3	3	1	-	-	2	2	-	3
C 414.5	3	1	-	3	-	3	-	-	3	1	2



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BP801T - Course outcome C 425 - Biostatistics and Research Methodology – Theory	
NAAC CODE	STATEMENTS
C 425.1	Learn basic concept of biostatistics and graphical representation of results for better interpretation.
C 425.2	Understand and apply concepts of probability and statistical tests like T-tests and One-Way ANOVA.
C 425.3	Design research projects and analyse data using appropriate statistical methods.
C 425.4	Explore Practical components of Industrial and Clinical Trials Problems
C 425.5	Understand Design and Analysis of experiments and Response Surface methodology

C 425 - Biostatistics and Research Methodology – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 425.1	3	3	2	1	-	-	-	-	-	-	3
C 425.2	2	2	1	2	-	-	-	-	-	-	2
C 425.3	2	2	2	2	-	-	-	-	-	-	3
C 425.4	3	2	2	1	-	-	-	-	-	-	3
C 425.5	2	2	1	2	-	-	-	-	-	-	2



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BP802T - Course outcome C 426 - Social and Preventive Pharmacy – Theory	
NAAC CODE	STATEMENTS
C 426.1	Understand public health concepts, social problems of the sick, and the importance of nutrition and balanced diet
C 426.2	Learn about disease prevention and control, including drug abuse and addiction.
C 426.3	Gain knowledge of National Health Programs and their role in eradicating communicable diseases.
C 426.4	Understand the role of WHO in social health and Indian National Health Programs.
C 426.5	Study community services under rural and urban health missions.

C 426 - Social and Preventive Pharmacy – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 426.1	3	-	1	-	-	-	-	-	2	2	3
C 426.2	3	2	-	-	-	-	-	-	2	1	2
C 426.3	2	-	1	-	-	-	2	-	-	1	2
C 426.4	2	2	-	-	-	-	2	-	-	1	2
C 426.5	2	1	-	-	-	-	-	-	-	2	2



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BP805ET - Course outcome C 427 - Pharmacovigilance – Theory	
NAAC CODE	STATEMENTS
C 427.1	Understand the importance of pharmacovigilance, ADR detection and assessment and terminologies used.
C 427.2	Learn about Drug and disease classification, Drug dictionaries and coding in pharmacovigilance, Information resources in pharmacovigilance and Establishing pharmacovigilance programme
C 427.3	Explore vaccine safety surveillance, Pharmacovigilance methods and Communication in pharmacovigilance
C 427.4	Generating safety data across pre-clinical, clinical, and post-approval phases.
C 427.5	Drug safety evaluation in pediatrics, geriatrics, pregnancy, and lactation.

C 427 - Pharmacovigilance – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 427.1	2	2	2	1	-	-	-	-	-	2	3
C 427.2	2	2	1	-	-	-	-	-	-	1	2
C 427.3	3	2	2	2	-	-	-	-	-	2	3
C 427.4	3	2	2	1	-	-	-	-	2	1	3
C 427.5	2	1	1	-	-	-	-	-	-	2	3



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BP809ET - Course outcome C 428 - Cosmetic science – Theory	
NAAC CODE	STATEMENTS
C 428.1	Understand regulations related to cosmetics and cosmetic excipients and basic structure and functions of skin, hair and oral cavity.
C 428.2	Comprehend Principles of formulation and building blocks of skin and hair care products
C 428.3	Know about sun protection and role of herbs in cosmeceuticals.
C 428.4	Understand Principles of Cosmetic Evaluation and explore the working of instruments used for evaluation.
C 428.5	Basic understanding of the terms Comedogenic, dermatitis and other disorders of skin, hair and scalp and their treatment.

C 428 - Cosmetic science – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 428.1	2	2	1	2	-	-	-	-	-	1	3
C 428.2	2	2	1	3	-	-	-	-	-	2	3
C 428.3	3	2	2	2	-	-	-	-	-	2	2
C 428.4	2	1	1	3	-	-	-	-	-	1	3
C 428.5	2	2	1	2	-	-	-	-	-	1	3



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BP811ET - Course outcome C 429 - Advanced Instrumentation Techniques – Theory	
NAAC CODE	STATEMENTS
C 429.1	Learn advanced instruments like NMR and Mass Spectrometry and their applications.
C 429.2	Study thermal methods like TGA and DSC for drug stability analysis.
C 429.3	Understand calibration procedures for analytical instruments.
C 429.4	Know Radio immune assay and Extraction techniques
C 429.5	Understand the principles and instrumentation of hyphenated techniques in pharmaceutical analysis.

C 429 Advanced Instrumentation Techniques – Theory											
	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
C 429.1	2	2	2	3	-	-	-	-	-	-	3
C 429.2	2	1	2	3	-	-	-	-	-	-	2
C 429.3	1	1	1	2	-	-	-	-	-	-	2
C 429.4	1	2	1	2	-	-	-	-	-	-	2
C 429.5	2	2	1	2	-	-	-	-	-	-	2



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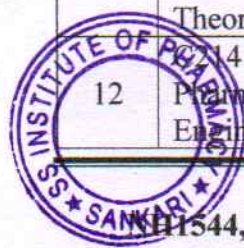
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S.NO		PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11
1	C111– Human Anatomy and Physiology-I Theory	2	2	1	1	1	2	1	2	3	1	3
2	C 112 – Pharmaceutical Analysis I – Theory	1	1	1	3	1	1	1	1	2	1	3
3	C113– Pharmaceutics I Theory	3	1	2	1	1	3	1	1	2	1	2
4	C114– Pharmaceutical inorganic chemistry Theory	2	1	2	1	1	2	1	1	2	1	2
5	C125– Human Anatomy and Physiology II Theory	2	1	1	1	1	2	1	1	3	1	2
6	C126– Pharmaceutical Organic Chemistry I Theory	2	1	1	-	1	2	-	1	2	1	2
7	C127– Biochemistry Theory	2	1	1	1	1	2	1	1	2	1	2
8	C128– Pathophysiology Theory	2	1	1	1	1	2	1	1	2	1	2
9	C211– Pharmaceutical Organic Chemistry II – Theory	3	2	1	1	1	1	-	1	1	1	2
10	C212 – Physical Pharmaceutics I – Theory	2	1	1	1	1	1	1	1	2	1	3
11	C213 - Pharmaceutical Microbiology – Theory	2	2	1	2	1	1	1	1	2	1	3
12	C214 - Pharmaceutical Engineering – Theory	3	1	1	3	1	1	1	-	2	1	3



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13	C225 - Pharmaceutical Organic Chemistry III- Theory	2	1	1	1	1	1	1	1	1	1	2
14	C 226 - Medicinal Chemistry I-Theory	3	1	1	1	1	1	1	1	1	1	3
15	C 227 - Physical Pharmaceutics II- Theory	3	1	1	1	1	1	1	1	1	1	3
16	C 228-Pharmacology I -Theory	2	1	1	1	1	1	1	1	1	1	2
17	C 229 - Pharmacognosy and Phytochemistry I - Theory	2	1	1	1	1	1	1	1	1	1	2
18	C 311 - Medicinal Chemistry II -Theory	2	2	2	1	-	-	-	-	-	1	2
19	C 312 - Industrial Pharmacy I -Theory	3	2	2	2	1	1	1	2	2	2	3
20	C 313 -Pharmacology II-Theory	3	-	2	-	-	2	-	-	-	-	3
21	C 314 - Pharmacognosy and Phytochemistry II - Theory	3	2	2	2	-	-	-	-	-	-	3
22	C 315 - Pharmaceutical Jurisprudence - Theory	3	1	3	-	2	1	3	1	2	1	3
23	C 326 - Medicinal Chemistry III-Theory	3	2	1	-	-	-	-	-	-	-	3
24	C 327 -Pharmacology III- Theory	3	2	2	-	-	-	-	-	-	1	3
25	C 328 -Herbal Drug Technology-Theory	3	2	2	-	-	-	1	-	1	1	3
26	C 329 - Bio pharmaceutics and Pharmacokinetics - Theory	3	2	1	-	-	-	-	-	-	-	3
27	C 330 - Pharmaceutical	2	2	2	1	-	-	-	-	-	-	3



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	Biotechnology – Theory											
28	C 3211 - Pharmaceutical Quality Assurance – Theory	2	1	1	1	-	-	2	-	1	1	2
29	C 411 - Instrumental Methods of Analysis – Theory	3	2	2	3	1	1	1	1	1	1	3
30	C 412 - Industrial Pharmacy II–Theory	2	1	1	2	1	1	1	1	1	1	3
31	C 413 - Pharmacy Practice– Theory	3	1	2	2	1	2	1	1	2	1	3
32	C 414 - Novel Drug Delivery System – Theory	3	2	2	3	1	2	1	2	2	1	3
33	C 425 - Biostatistics and Research Methodology – Theory	2	2	2	2	-	-	-	-	-	-	3
34	C 426 - Social and Preventive Pharmacy – Theory	2	1	1	-	-	-	1	-	1	1	2
35	C 427 - Pharmacovigilance – Theory	2	2	2	1	-	-	-	-	1	2	3
36	C 428 - Cosmetic science – Theory	2	2	1	2	-	-	-	-	1	1	3
37	C 429 - Advanced Instrumentation Techniques – Theory	2	2	1	2	-	-	-	-	-	-	2
	TOTAL PO	89	55	53	49	24	34	26	25	45	30	97
	ATTAINMENT LEVEL	2.4	1.4	1.4	1.3	0.6	0.9	0.7	0.6	1.2	0.8	2.6
		80	47	47	43	20	30	23	20	40	27	87



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