ROFEL SHRI G.M. BILAKHIA COLLEGE OF PHARMACY, VAPI

ROFEL NAMDHA CAMPUS, Vapi-Namdha Road, Vapi (West) - 396191, Dist.- Valsad (Gujarat)

PROGRAM EDUCATIONAL OUTCOMES FOR INSTITUTE

PEO1: To produce well qualified pharmacy professionals with adequate knowledge of fundamental concepts and engage in continuous learning to keep up with current trends.

PEO2: To provide qualified pharmacists to the society with professional expertise to make and serve in health-care system.

PEO3: To produce graduates with technical skills, leadership skills, communication skills, team building skills and ethical practices to accommodate in the various areas of pharmaceutical sciences.

PEO4: To foster development of students by encouraging them to participate in various conferences, seminars, workshops, expert talks and research-based activities.

PROGRAM OUTCOMES

1. Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

2. Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

3. Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

4. Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

5. Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

6. Professional Identity: Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

7. Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

8. Communication: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.

10. Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

11. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

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BP101TP Human Anatomy and Physiology I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and understanding of basic terminologies, levels of Structural organisation with main focus on cellular and tissue levels with Homeostasis	3			1							1
CO2	Knowledge and understanding of structure and functions of skin, skeletal system, joints, Blood, its components and lymphatic system of the human body including their disorders	3			1							1
CO3	Knowledge and understanding of structure and functions of periphearal nervous system and special senses including their disorders	3			1							1
CO4	Knowledge and understanding of structure and functions of CVS system with their disorders	3			1							1
CO5	Ability to perform common haematological and physiological practicals	3	2	2	2	1	1		1	1		1
BP102TP Pharmaceutical Analysis-I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the basic concepts of analytical techniques; Knowledge of limit tests & its application; and errors in pharmaceutical analysis	2	1									1
CO2	Knowledge of principles, theory, methods and applications of various titrimetric methods of analysis.	2	1									1
CO3	Knowledge of principles, theory, methods and applications of gravimetry.	1	-									1
CO4	Knowledge of principles, theory, methods and applications of various electrochemical methods of analysis.	2	1									1
CO5	Ability to carry out assay of various compounds by using various titrimetric and electrochemical methods of analysis.	2	2	1	1							1

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BP103TP PHARMACEUTICS-I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of dispensing pharmacy: its history, various dosage forms, prescription handling, posology, pharmaceutical calculations & incompatibilities	3		2								2
CO2	Knowledge and application of pharmaceutical calculations & pharmaceutical incompatibilities in dispensing of conventional dosage forms	3		2								1
CO3	Knowledge on liquid dosage forms: merits & demerits, methods of preparation, aspects of stability and excipients	3										1
CO4	Knowledge of powders, suppositories and semisolid dosage forms: merits & demerits, various types, methods of preparation, excipients and evaluation	3										1
CO5	Ability to prepare and dispense prescriptions of various liquid formulations, semisolid dosage forms, powder and suppositories.	3	3	2			1	1	1			2
BP104TP Pharmaceutical inorganic Chemistry												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge of various pharmacopoeias, its history and monographs,	2										1
CO2	Knowledge of various impurities in pharmaceutical substance and their limit tests.	2	1									1
CO3	Knowledge of general methods of preparation and assay of various selected inorganic compounds.	1										1
CO4	Knowledge of properties and medicinal uses of selected inorganic compounds	2										1
CO5	Ability to perform limit test of impurities, test of purity and identification of inorganic substances	2	1	2	1							1
BP105TP Communication Skills												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**

CO1	Knowledge and understanding of behavioural needs for a Pharmacist to function effectively in the areas of pharmaceutical operation								2			2
CO2	Basic understanding of the elements of communication and communication system matrix with examples.								2			
CO3	Understanding and development of skills like active listening and other skills of effective communication such as speech and writing.								2			
CO4	Understanding and to develop skills for interview, presentation, and group discussions.								2			
CO5	To interact effectively with other health workers by improving and doing basic communication, pronunciation and listening skills.		2	2	2	1			2			2
BP106TP Remedial Biology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and basic understanding of living world, its classification and plant anatomy.	3			2							1
CO2	Basic knowledge of plant nutrition, photosynthesis, plant respiration, growth, cell and tissue	3			2							1
CO3	Basic knowledge of anatomy and physiological process of human body: Body fluids and circulation; digestion and absorption; breathing and respiration	3		2	2							1
CO4	Basic knowledge of anatomy and physiological process of human body: Excretory products and their elimination; neural control and coordination; chemical coordination and regulation; reproduction	3		2	2							1
CO5	Ability to perform microscopical study and identification of plant parts; identify bones, measure BP and tidal volume	3	3	2	2	2			2			1
BP107TT Remedial Mathematics												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding basic formulas to be used for calculations in pharmacy.	3	3	2	2		2			2	1	2

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CO2	Ability to perform mathematical operations with confidence, speed and accuracy.	2	3	2	2		2			2	1	2
CO3	Application of mathematics in pharmacy calculations	3	1		2					3	1	
CO4	Ability to evaluate raw data and compilation	2	3	2	2		2			2	1	2
BP201TP Human Anatomy and Physiology II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to learn about anatomy and physiology of nervous system and digestive system	**3**			**1**							**1**
CO2	Ability to learn about anatomy and physiology of respiratory and urinary system	3			1							1
CO3	Ability to learn about anatomy and physiology of endocrine system	3			1							1
CO4	Ability to learn about anatomy and physiology of reproductive system and genetics	3			1							1
CO5	Ability to perform physiological experiments	3			2	2			2			1
BP202TP Pharmaceutical Organic Chemistry I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge of classification, IUPAC nomenclature of organic compounds and structural Isomerism.	2										1
CO2	Knowledge and applications of general reactions, orientation of reactions, reactivity/ stability of organic compounds and analytical constant	2										1
CO3	Knowledge and basic understanding of methods of preparation, reactions, physical & chemical properties.	2										1
CO4	Knowledge about structure, Qualitative tests and uses of organic compounds	1										1
CO5	Ability to perform different qualitative tests for organic compounds	2	1	1								1

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BP203TP Pharmaceutical Engineering												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge of various unit operations and materials handled in pharmaceutical industries	3										2
CO2	Knowledge and ability to perform various processes involved in pharmaceutical manufacturing process.	3										2
CO3	Knowledge and ability to perform on various machineries used in pharmaceutical manufacturing process.	3										2
CO4	Knowledge of various preventive methods used for corrosion control in Pharmaceutical industries	3									1	1
CO5	Ability to perform various unit operations and their optimization	3	2	2					1			2
BP204TP Computer Applications in Pharmacy												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of computer number system and information management system.	1	1	1								1
CO2	Knowledge and ability to work with currently used web technologies and pharmacy dug database.	2	1		1							1
CO3	Knowledge of various computerised systems in pharmacy & bioinformatics.	2	1		1							1
CO4	Knowledge of computer data analysis tools in preclinical development.	2	1		1							1
CO5	Ability to perform applications of databases in pharmacy	2	1		1							1
BP205TT ENVIRONMENTAL SCIENCES												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To impart knowledge about environment and its systems and to develop an attitude of concern for the environment.										2	2

CO2	Acquiring skills to help the concerned individuals in identifying and solving environmental problems.										2	2
BP301TP PHARMACEUTICAL ORGANIC CHEMISTRY-II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and ability to write structure, name and the type of isomerism of organic compounds.	2										1
CO2	Knowledge and applications of general reactions, orientation of reactions, reactivity/ stability of organic compounds and analytical constant	2	1									1
CO3	Knowledge and basic understanding of basic methods of preparation, reactions, synthesis, physical & chemical properties, tests, uses of organic compounds	2	1									1
CO4	To know chemistry of fats and oils	1										1
CO5	Ability to determine oil values and perform synthesis of specified compounds.	2	2	2							1	2
BP302TP PHYSICAL PHARMACEUTICS-I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge about various physical and physicochemical properties in the formulation development.	3										2
CO2	Knowledge and applications of basic principles and concepts of solubility	3										2
CO3	Knowledge and applications of basic principles and concepts of surface and interfacial phenomena.	3										2
CO4	Knowledge and application of basic principles and concepts of complexation, buffers and isotonicity in drug product design.	3										2
CO5	Ability to use physicochemical properties in the formulation development and evaluation of dosage forms.	3	2	2								2

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BP303TP BIOCHEMSTRY												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and understanding of the biomolecules and bioenergetics,	2										1
CO2	Knowledge and understanding of biochemical facts and metabolism of nutrient molecules in physiological and pathological conditions.	2										1
CO3	Understanding the genetic organisation of mammalian genome and functions of DNA in the synthesis of RNAs and proteins	2	1									1
CO4	Understanding the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.	1										1
CO5	Ability to perform quantitative and qualitative analysis of various nutrient and biochemical substances in biological fluids.	2	2	1								1
BP304TT PATHOPHYSIOLOGY												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and understanding of basic concept of cell injury including its pathogenesis and types of cellular adaptations and cell death.	3										1
CO2	Knowledge and understanding of basic concept and types of inflammation with its mechanism including chemical mediators involved in it and basic principles of wound healing in skin.	3			1							1
CO3	Knowledge and understanding of pathophysiology including pathogenesis, etiology, sign and symptoms, diagnosis and complications of various diseases of cardiovascular, respiratory and renal system,	3		1	1					1		1
CO4	Knowledge and understanding of pathophysiology including pathogenesis, etiology, sign and symptoms, diagnosis and complications of various haematological disease, disease of Nervous, endocrine and gastrointestinal system	3		1	1					1		1

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CO5	Knowledge and understanding of pathophysiology including pathogenesis, etiology, sign and symptoms, diagnosis and complications of various bones and joints disease, infectious and sexually transmitted disease and the principles of cancer	3		1	1					1		1
BP305TP Pharmacognosy and Phytochemistry I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding of techniques in cultivation and production of crude drugs	3	2	2	2	2	2	2	2	1	3	2
CO2	Knowledge and skills on various quality control parameter for evaluation of crude drugs	3	2	1	2	1	2	2	2	1	1	2
CO3	Understanding of alternative medicinal system and role of secondary plant metabolites	3	2						1			1
CO4	Knowledge and understanding of primary plant metabolites	3		1	1							
CO5	Knowledge and skills to evaluate various crude drug by physical and microscopical techniques.	3	3	2	2	2	2	2	2	2	2	2
BP401TT Pharmaceutical Organic Chemistry III												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the methods of preparation and properties of heterocyclic organic compounds	2										1
CO2	Knowledge and understanding of the stereochemical aspects of organic compounds and stereochemical reactions	2										1
CO3	Knowledge about the medicinal uses and other applications of heterocyclic organic compounds	1										1
CO4	Knowledge and applications about the reactions of synthetic importance	2									1	1
BP402TP MEDICINAL CHEMISTRY - I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**

CO1	Fundamental knowledge of Medicinal Chemistry and its history and development.	1										1
CO2	Understanding about the various physiochemical properties of drug molecules its importance in Biological activity.	1										1
CO3	Knowledge and applications about drug metabolism and its factors and synthesis of different class of drugs	2										1
CO4	Understanding and application about chemistry of drugs with respect to their pharmacological activity and its SAR in drug designing	2										1
CO5	Ability to perform synthesis and assay of specified drugs.	2	1	1	1						1	1
BP403TP PHYSICAL PHARMACEEUTICS II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding about the properties, stability and applications of dispersed systems.	3										2
CO2	Knowledge and skills of applying basic principles of rheology in formulation development.	3										2
CO3	Knowledge and skills of applying principles of micromeritics in dosage form development.	3										2
CO4	Knowledge about the principles of chemical kinetics & skills to use them for stability testing and determination of expiry date of formulations.	3										2
CO5	Ability to use physicochemical properties in formulation development and to carry out evaluation of selected dosage forms.	3	2	1					1			2
BP404TP PHARMACOLOGY- I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of various terms used in pharmacology and understanding of drug pharmacokinetics and its relevance in drug responses	3		2	2	1				1		2

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CO2	Knowledge about drug pharmacodynamics and understanding of drug interactions, adverse drug reactions and new drug discovery	3		2	2	1				1		2
CO3	Ability to learn pharmacology of various drugs acting on peripheral nervous system with knowledge of receptors involved in and their role in drug action.8	3		3	1	1				1		2
CO4	Pharmacology of various drugs acting on central nervous system with knowledge of receptors involved in and their role in drug action.	3		2	1					1		2
CO5	Understanding of various aspects of experimental pharmacology and ability of various selected in-vivo pharmacological studies in animals	3	3	3	2	3			2			2
BP405TT Pharmaceutical Jurisprudence												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge about Pharmaceutical legislations and their implications in drug development and marketing	2						2		2	1	3
CO2	Understanding and implementation of code of Ethics in Pharmacy Practice	2					2	3		3	3	3
CO3	Knowing about regulatory authorities and agencies governing the manufacturing and sale of pharmaceuticals	2						2		2	1	3
CO4	Knowledge about various Indian Pharmaceutical Act and Laws including Schedules of drugs and its implications in pharmacy practice	2						2		3	2	3
BP501TT Medicinal Chemistry II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the relation of chemistry of drugs with respect to their pharmacological activities	2										1
CO2	Understanding drug metabolic pathways, adverse effects and therapeutic value of medicinal compounds	2										2
CO3	Understanding structural activity relationship of different class of drugs	2										1

CO4	Application and knowledge of various reactions in chemical synthesis of selected drugs	2									1	1
BP502TP PHARMACOLOGY - II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Fundamental knowledge on various pharmacological aspects of selected drugs acting in different systems of body	3		2	2				1			2
CO2	Understanding the mechanism of drug action and its relevance in the treatment of different diseases	3		2	1				1			2
CO3	Knowledge of various autocoids and their role	3		2	1							1
CO4	Fundamental knowledge about endocrine system and principle of bioassay	3	1	2	2							1
CO5	Understanding the concept and ability to perform bioassays	2	3	2	2	3						1
BP503TP Pharmacognosy and Phytochemistry II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge and Ability to carry out modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents	3	2	3	2	2	1	2	2	2	2	2
CO2	Knowledge and ability to evaluate phytoconstituents in crude drugs by qualitative and quantitative methods	3	2	2	2	1		2	1	1	1	2
CO3	Knowledge about methods of isolation and identification of phytoconstituents from crude drugs.	3	2	3	1		1	2	1		1	2
CO4	Knowledge about biosynthesis of natural molecules and its pathway and its relevance.	3			1						1	1
CO5	Ability to perform identification, isolation and evaluation of crude drugs from natural resources in laboratory scale.	3	2	2	2	2	1	2	1	1	2	2
BP504TP Pharmaceutical Microbiology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**

CO1	Understanding of methods of identification, cultivation and preservation of various microorganisms	3										1
CO2	To understand the importance of sterilization and disinfection process in pharmaceutical industry	3										2
CO3	To know and learn about sterility testing and microbiological standardisation of pharmaceuticals	3										2
CO4	To understand microbial stability of formulations and cell culture technology with its applications	3										1
CO5	To carry out microbiological standardisation in pharmaceuticals	2	2	1					1		1	2
BP505TT Pharmaceutical Biotechnology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the importance of immobilised enzymes in pharmaceutical industries and knowledge of fermentation methods and products.	3										1
CO2	Understanding about genetic engineering and its applications in pharmaceutical production	3			1							2
CO3	Knowledge about human immunity, blotting techniques, monoclonal bodies and immunization products.	3									1	2
CO4	knowledge about genetic organization of eukaryotes, prokaryotes and Microbial genetics	3									1	1
BP507TP Integrated Personality Development Course												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge regarding holistic education and education regarding their social responsibilities					**1**	**2**					**2**
CO2	Develop ethical and moral values/practices for successful family, professional and social relationships					**1**	**1**					**2**
CO3	Understanding of hard and soft skills, self analysis, self improvement, self confidence and a defined identity					**1**	**1**					**2**

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BP601TP Medicinal Chemistry III												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the importance of drug design and different techniques of drug design	1										2
CO2	Knowledge about chemistry of drugs with respect to their biological activity and its application	2										1
CO3	Knowledge about metabolism, adverse effects and therapeutic value of drugs and its use	2										1
CO4	Understanding the importance of structural activity relationship of different class of drugs	2										1
CO5	Ability to carry out synthesis and assay of specific medicinal compounds	2	1	1	1						1	1
BP602TP Pharmacology III												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Fundamental knowledge on various pharmacological aspects of selected drugs acting in different systems of body	3		2		1						2
CO2	Understanding the mechanism of drug action and its relevance in the treatment of different diseases and infections	3		2		1	2					1
CO3	Knowledge of immunopharmacology- immunostimulants and immunosuppressants	3		2	1		1					1
CO4	Fundamental knowledge about principles of toxicology and treatment of poisoning	3		3	1	1	1					1
CO5	Understanding the concept and ability to perform experimental screening models	3	3	3	2	3	1		2			1
BP603TP Herbal Drug Technology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge of raw material as source of herbal drugs from cultivation to herbal drug products	3	1	1	2	1	2	2	1	2	2	2

CO2	Understanding and use of WHO and ICH guidelines for evaluation of herbal drugs	3	2	2	2	1	2	1			1	2
CO3	Knowledge and ability to prepare herbal cosmetics, natural sweeteners, nutraceuticals	3	3	2	2	1		1	1	1	1	2
CO4	To appreciate patenting of herbal drugs, GMP and to know its importance	3	2	2			2	1			1	2
CO5	Ability to prepare, standardise and evaluate as per WHO guidelines/ pharmacopoeial requirements	3	2	1	2	1		1	1			2
BP604TT Biopharmaceutics and Pharmacokintetics												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To know basic concepts in biopharmaceutics and pharmacokinetics and their significance.	3										2
CO2	Understanding various pharmacokinetic parameters, their significance and its applications.	3										2
CO3	Understanding the concepts of bioavailability and bioequivalence of drug products and their significance.	3										2
BP605TP Industrial Pharmacy I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the concept of preformulation studies and its application	3										2
CO2	Knowledge and applications of various considerations in development and manufacturing of pharmaceutical dosage forms	3										2
CO3	Knowledge and skills about various manufacturing methods and evaluation parameters for various types of dosage forms.	2										1
CO4	Knowledge about packaging materials for pharmaceutical products and factors affecting its choice.	2										2
CO5	Ability to formulate and evaluate different dosage forms.	2	2	1				1	1			1
BP701TP Instrumental methods of Analysis												

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Code	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	To understand Principles, Instrumentation and applicability of different Spectroscopic Techniques (UV, Fluorimetry, IR, Flame, AAS and Nepheloturbidometry).	2										1
CO2	To know about separation techniques like GC, HPLC, TLC, Paper, column, Ion exchange, Gel and Affinity chromatography for drug analysis.	2										1
CO3	Ability to differentiate spectroscopic and chromatographic techniques and selection of analytical technique as per drug to be analysed.	1										1
CO4	Ability to perform qualitative and quantitative analysis of drugs using various analytical Instruments.	2	1	1	2							2
BP702TT INDUSTRIAL PHARMACY II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	The students should know about pilot plant and scale up of pharmaceutical products.	3										
CO2	To students should understand technology transfer from lab scale to commercial batch.	3										
CO3	Students should know different regulations for registration and maintenance of drug product.	3										1
CO4	Students should understand various quality oriented concepts for pharmaceutical industry.	3						1				1
BP703TT PHARMACY PRACTICE												
CODE	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to learn about pharmacy store management, drug distribution system and inventory control system	3	1		1	1						1
CO2	Ability to learn skills of patient counselling, ADR monitoring and other pharmaceutical cares services	3		2		1	1	1	2	1		1

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CO3	Ability to learn interpretation of prescription, identifying drug related problems (medication history) and rationalizing drug therapy	3		3		1				1		1
BP705PP Practice School												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To acquire skill in the practical field i.e. hospital, medical store, or industry	3										2
CO2	To gain knowledge regarding reviewing literature	3										2
BP704TT NOVEL DRUG DELIVERY SYSTEMS												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To learn the concept of sustained and controlled release formulations	3										1
CO2	To learn the concept of various novel drug delivery systems	3			1							1
BP706TT QUALITY ASSURANCE												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the basic concept and responsibilities of QA and QC departments in Pharmaceutical plant.	2	1	1								1
CO2	To know the basic requirements for GMP, GLP and GWP in Pharma industry.	2	1				1	1				1
CO3	Understanding the importance of documentation.	2		1								1
CO4	To know the scope of quality certifications applicable to pharmaceutical industry.	1										1
BP801TT Biostatistics and Research Methodology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	The student should able to understand the various statistical techniques.	3										

CO2	The student should able to understand the future tends & importance of statistical tool in Research & Pharmaceutical operation.	3									
CO3	The student should acquire knowledge of various statistical software for pharmaceutical product development.	3	1	1	1						1
BP802TT Social And Preventive Pharmacy											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge of Concepts of Health and diseases and its prevention and control with social health issue and awareness regarding Sociology and Hygiene,	3								1		1
CO2	Knowledge regarding preventive medicines for various communicable diseases	3		1						1		1
CO3	Knowledge and awareness, consciousness/realization of current issues and national Programmes related to health and pharmaceutical problems within the country	2		1						1		1
BP803TT Pharma Marketing Management											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Student should know various marketing concepts, techniques and their applications in pharmaceutical industry.	3										1
CO2	Students should have knowledge of product decision and promotion techniques.	3				1						1
CO3	Students should understand pharmaceutical marketing channels and pricing strategies including DPCO knowledge.	3										1
BP804TT Pharmaceutical Regulatory Science											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To understand the concept of new drug discovery and development, generics and various regulatory concepts.	2						1				2

CO2	To understand various regulatory approval process with its agencies and registration process of drug in overseas market.	2			1			1				2
CO3	To understand basic concept of clinical trials and Pharmacovigilance.	2						2		1		2
BP805TT Pharmacovigilance												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic understanding of Pharmacovigilance and its fundamentals like coding and dictionary	1										3
CO2	ADR assessment, reporting and communications in Pharmacovigilance	1				1					1	3
CO3	Various requirements for ADR reporting	1										3
BP806TT	**Quality Control and Standardisation of Herbals**											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding WHO and ICH guidelines for evaluation of herbal drugs	3	2	2	2	1	2	1			1	2
CO2	To know Quality assurance in herbal drug industry	3	2	1	2	1	2				1	2
CO3	To know the regulatory approval process and their registration in Indian and international markets	3	2	2	2	1	2	1			1	2
BP810TT Experimental Pharmacology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To understand the preclinical research skills and screening methods of toxicology studies	1	1					1	1			
CO2	To understand the research approach, research design and biostatistics application toxicology studies.	1	1					1	1			
BP811TT	**Advanced Instrumentation techniques**											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**

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CO1	Understanding the concept and use of advanced instruments in drug analysis.	2	1		1							1
CO2	Understanding the concept and use of chromatographic methods in drug analysis.	2	1		1							1
CO3	To know the calibration process of various analytical instruments and concept of different extraction processes.	2	1									1
BP813PP	**Project Work**											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To acquire skill in the research work	3										2
BP814T	**Pharmaceutical Product Development**											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the concepts of pharmaceutical product development, including optimization techniques and various excipents to be used	3										2
CO2	Understand the regulatory requirement of packaging materials, quality control of various dosage forms	3										2

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MAT101T Modern Pharmaceutical Analytical Techniques											
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the concept of the Spectrophotometry and chromatography in Analysis	2	1	1								1
CO2	Understanding for interpretation of UV, IR, MS and NMR for structure elucidation.	1	1	1								1
CO3	Understanding of analysis of various drugs in single and combined dosage form	2	1	1	1							1
CO4	Understanding the basic instrumentation and Practical skills of the instruments	2	1	1	1							1
MPH102T Drug Delivery System												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To know and understand the concept of sustained, controlled and customized drug delivery	2										1
CO2	To know and understand the concept of various novel drug delivery systems	2										1
MPH103T Modern Pharmaceutics												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Student should be able to understand various preformulation studies and experimental designs.	3										1
CO2	Students should understand various GMP aspects of pharmaceutical industry.	3						2				1
CO3	Students should have knowledge of tablet compression physics and various drug release kinetic models.	3										1
MPH104T Regulatory Affair												

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Code	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	Understanding the concept of innovator and generic drug development.	3		1								1
CO2	To know regulatory guidelines for product approval and post approval requirements of various countries.	3										1
CO3	To know and understand the concept of clinical trial requirements and pharmacovigilance.	2		1				1		1		1
MPH105P Pharmaceutics Practical I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to Develop the analytical methods for estimation of drugs in single and combined dosage forms	2	2	2	2		1					1
CO2	Ability to formulate different dosage forms and evaluate them for their quality.	3			1							1
MQA102T Quality Management System												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of quality management principles and documentation Practices for Pharmaceutical industry.	2	1									1
CO2	Understanding of basics of quality certifications, Regulatory compliance and concepts of ISO, ICH, GMP & SPC	2	1					1				1
MQA103T Quality Control and Quality Assurance												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of GMP, GLP and various regulatory authorities.	2	1			1						1
CO2	Understanding of IPQC parameters of various dosage form and documentation and legal procedures of Pharma industry.	2	1									1
MQA104T Product Development and Technology Transfer												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**

CO1	Basic knowledge of new product development process and its preformulation studies	2	1									1
CO2	Understanding the concept of pilot plant scale up, pharmaceutical packaging and technology transfer	2	1									1
MQA105P Pharmaceutical Quality Assurance Practical I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Basic knowledge of the analytical methods for estimation of drugs in single and combined dosage form	2	1	1	2							1
CO2	Ability to perform preformulation study of drugs, in process and finished product quality control tests for various dosage forms and enhancement of solubility of poorly soluble drugs	2	1	1	2							1
MPL102T Advanced Pharmacology-I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Knowledge about general pharmacology, classification of drug and body system function	3				2			2	2		
CO2	knowledge on various aspects like epidemiology, etiology, pathophysiology, sign and symptoms, treatment and management of disease, MOA of drugs	3		2		2			2	2		1
CO3	Knowledge of various class of drugs	3				2			2	2		1
MPL103T Pharmacological and Toxicological Screening Methods-I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to appraise the regulations and ethical requirement for use of animals, GLP & handling of experimental animals	2										1
CO2	Ability to describe the various screening methods involved in the drug discovery process	2										2
CO3	Ability to describe the various screening methods used for immunomodulators, alternative to animal experiments & correlate preclinical data to humans.	2										2

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MPL104T Cellular and Molecular Pharmacology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding molecular pathway, receptor level and drugs acting on receptors	3										1
CO2	Understanding the molecular and biotechnology process in research field	3										1
MPL105P Pharmacology Practical I												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the development of analytical methdos for estimation of drugs in single and combined dosage form	2	2	2	2		1					1
CO2	Understanding and learning practical skill aspects regarding preclinical research and biotechnology techniques	2										2
MPH201T Molecular Pharmaceutics (Nano Tech and Targeted Drug Delivery System)												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To know and understand the concept and approaches of various novel drug delivery systems	2										1
CO2	To know and understand the concept of targeted drug delivery systems	2										1
MPH202T Advanced Biopharmaceutics & Pharmacokinetics												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Students shall be able to understand basic concepts of biopharmaceutics and pharmacokinetics.	3										
CO2	Students shall be able to understand various terminologies and concepts to analyse pharmacokinetic parameters.	3		1								
CO3	Students shall be able to understand application of biopharmaceutics and pharmacokinetics in the field of pharmacy.	3			1							1
MPH203T Computer Aided Drug Delivery System												

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Code	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	Student should able to impart knowledge and skills necessary for computer Applications in pharmaceutical research and development	3	1	1	2							1
CO2	The student should acquire knowledge of Computational Modeling in Preclinical & Clinical Development	3			1							1
CO3	The student should able to understand the future tends & importance of Artificial Intelligence (AI)	2			1							
MPH204T Cosmetic and Cosmeceuticals												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	To know building blocks for various cosmetic & herbal cosmetics formulations.	3		2								2
CO2	To understand biological aspects of cosmetics & various ingredients used in cosmetics.	3		2								2
CO3	To understand scientific knowledge for cosmetic manufacturing and regulatory requirements.	2		1								2
MPH205P Pharmaceutics Practical II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to formulate different dosage forms and evaluate them for their quality.	3	-	-	1	-	-	-	-	-	-	1
CO2	Ability to conduct data analysis	3	-	-	1	-	-	-	-	-	-	1
MQA201T Hazards and Safety Management												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding environmental problems and other problems associated.	2									1	1
CO2	Understanding of safety standards in pharma industry and hazard management system.	2										1
CO3	Understanding methods of hazard assessment, procedure, and methodology for safe industrial atmosphere	2		1							1	1

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MQA202T Pharmaceutical Validation												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding concept of calibration, qualification and validation and ability to differentiate the concepts	2										1
CO2	Understanding qualification of various equipment's, instruments and facilities	2	1		1							1
CO3	Understanding process validation of different dosage forms, AMV and cleaning validation and concept of IPR	2										1
MQA203T Audits and Regulatory Compliance												
Code	**Course Outcome**	**2**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding the importance and methodology of auditing	2	1			1	1					1
CO2	Understanding the planning and process to carry out the audit	2	1	1		2	1		1			1
CO3	Understanding Audit report and checklist for audit	2	1	1		1	1					1
MQA204T Pharmaceutical Manufacturing Technology												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understanding regulatory requirements for pharmaceutical industry development and its approaches.	2	1									1
CO2	Understanding of advanced manufacturing process and atomization for pharmaceutical dosage forms.	2										1
CO3	Understanding different type of packaging system in pharmaceutical industry.	2										1
MQA205P Pharmaceutical Quality Assurance Practical II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to perform Qualification of Instruments and validation of analytical methods.	2	1	1	2							1

CO2	Understanding of Cleaning validation, preparation of checklist and case studies.	2	1	1	2							1
MPL201T ADVANCED PHARMACOLOGY II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	knowledge of various drugs use in various diseases.	3		1			2		2	2		2
CO2	Study of free radicals in development of various diseases.	3		1			2		2	2		2
MPL202T PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understand and learn the toxicity studies as per various international regulatory bodies guidelines.	3	2	1		2	1	2				3
CO2	Demonstrate the practical skills and learning ethical guidelines for preclinical & clinical studies.	3	2	1		2		2				3
MPL203T PRINCIPLES OF DRUG DISCOVERY												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	understand the various stages of drug discovery and the role of genomics, proteomics, and bioinformatics in drug discovery	2										
CO2	Understand the identification and validation of target and method for identification and optimization of lead	2										
CO3	Understand the role of computer aided drug discovery	2										
MPL204T CLINICAL RESEARCH AND PHARMACOVIGILANCE												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Understand and learn regulatory requirements for conducting clinical trial and clinical trial design.	3	1		1			2		1		1
CO2	understand roles of trial personnel’s and clinical trial documents.	3	1		1			2		1		1
CO3	Understand about ADR and pharmacovigilance.	3	1		1			2		1		1

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MPL205PP PHARMACOLOGICAL PRACTICAL II												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to learn practical skill aspects regarding preclinical research as per OECD guidelines	3	2	2	3	1		1				2
CO2	Understanding pharmacological & non-pharmacological methods for drug screening.	3	2	2	3	1						2
MRM301T Research Methodology and Biostatistics												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Student should able to impart knowledge and skills necessary for experimental design in pharmaceutical research and development	3	2	2	2							1
CO2	The student should able to understand the future tends & importance of statistical tool in Research & Pharmaceutical operation.	3	2	2	2							1
CO3	The student should able to understand the regulatory perspectives of Medical research	3										1
CO4	To know and understand about IPR & Patents	2										1
MRW403P PROJECT WORK												
Code	**Course Outcome**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	Ability to learn practical and writing skill aspects regarding research work and thesis writing respectively	3	2	2	3	1		1				2