



BLDEA's
SSM COLLEGE OF PHARMACY AND RESEARCH
CENTRE, VIJAYPUR-586103



POs, PSOs, PEOs and COs
of All Programs
Offered by the Institution
(B PHARM, PHARM D, M PHARM)

Program Outcomes(PO's)	B Pharm
Program Specific Outcomes(PSO's),	Pharm D
Program Education Objectives(PEO's) & Course Outcomes (CO's)	M Pharm

PREAMBLE

All Program outcomes (POs), Program specific outcomes (PSOs) & Program education objectives (PEOs) have been adequately addressed through the core courses and their course outcomes (Cos). These measurements are developed by the institution for continuous improvement in the quality of teaching learning process and have been properly proposed, assessed & approved in order to attain various teaching learning outcomes.

Program outcomes, program specific outcomes, program education objectives and course outcomes for all programs offered by the Institution are stated below.

IQAC coordinator

Principal

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PROGRAM OUTCOMES – B PHARM

ATTRIBUTES	POs
A.	Able to acquire and apply fundamental principles and applications of pharmaceutical sciences to meet professional challenge
B.	Able to develop critical and analytical thinking to address issues related to pharmaceutical industry, regulatory, hospital and community pharmacy
C.	Able to utilize equipment and simulation software to design synthesis and formulate drug and drug component meeting economic safety health and, environmental sustainability needs.
D.	Able to function efficiently as multidisciplinary team member at different areas of professional practice.
E.	Able to identify formulate and propose solutions to the problems encountered at professional practice.
F.	Cognizant of ethical and professional responsibilities and maintain professional integrity
G.	Able to communicate efficiently at all level of target audience to deliver professional care
H.	Able to assess professional accomplishments with societal, national and global perspectives at large.
I.	Able to foster and engage life long professional learning to deliver professional services to the health care system of the nation
J.	Able to integrate contemporary issues relating to profession and practice for scientific advancement
K.	Able to exploit technique, tools and skills for effectual deliverance of professional practice.



PROGRAM SPECIFIC OUTCOMES - BPHARM

SR.NO	PSOs
I	<p>Knowledge: Enable graduates to understand the core and basic knowledge in different subjects of pharmaceutical sciences as per the requirement of pharmaceutical sectors.</p>
II	<p>Employment & Entrepreneur: Enable graduate to succeed in technical or professional careers in various pharmaceutical industry/institute or health care system</p>
III	<p>Professional Practice: Enable graduate to practice profession and adapt in a globe of constantly developing trends</p>
IV	<p>Lifelong Learning & Professional Ethics: Enable graduate to streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem</p>



PROGRAM EDUCATION OBJECTIVES - B PHARM

Sr.No	PEOs
1	To contribute skilled graduates to the pharmacy professional task force through state of art learning with diverse aspect of pharmaceutical sciences and applied competency areas
2	To train graduates with apt professional and interpersonal skills to deliver with state, national and global health care programme
3	To cultivate an ambitious yearning in graduates for higher educational advancement, career growth and lifelong learning.
4	To mould graduates to become visible as future entrepreneur and leaders of the profession
5	To empower graduates to local and global needs of environment sustainability and protection




COURSE OUTCOMES - B PHARM

	Name of the Program:	B PHARM
	Year:	1st SEM
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	HUMAN ANATOMY AND PHYSIOLOGY I	BP101T	1st SEM	CO1	Explain the gross morphology, structure and functions of various organs of the human body
				CO2	Describe the various homeostatic mechanisms and their imbalances
				CO3	Identify the various tissues and organs of different systems of human body
				CO4	Perform the various experiments related to special senses and nervous system
				CO5	Appreciate coordinated working pattern of different organs of each system
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL ANALYSIS I	BP102T	1st SEM	CO1	An ability to apply knowledge of mathematics, science, and pharmacy, an ability to design and conduct experiments, as well as to analyze and interpret data
				CO2	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO3	an ability to function on multidisciplinary teams, an ability to identify, formulate, and solve pharmacy problems
				CO4	A knowledge of contemporary issues,
				CO5	An ability to use the techniques, skills, and modern pharmacy tools necessary for pharmacy practice



	Name of the Program:	B PHARM
	Year:	1st SEM
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICS I	BP103T	1st SEM	CO1	Know the historical background and development of profession of pharmacy and introduction to Dosage forms and Handling of Prescription
				CO2	Pharmaceutical calculations and understand basics concepts of powders and liquid dosage forms
				CO3	Understand formulation and evaluation of monophasic liquids and biphasic liquids
				CO4	Explain the formulation requirement and evaluation of suppositories and understand pharmaceutical incompatibility
				CO5	Understand the formulation and evaluation of Semisolid dosage forms
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL INORGANIC CHEMISTRY	BP104T	1st SEM	CO1	Well acquainted with the principles of limit tests
				CO2	Familiar with different classes of inorganic pharmaceuticals and their analysis
				CO3	Identification of different anions, cations and different inorganic pharmaceuticals.
				CO4	Knowledge about the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
				CO5	understand the medicinal and pharmaceutical importance of inorganic compounds
				CO6	To have been introduced to a variety of inorganic drug classes



	Name of the Program:	B PHARM
	Year:	2nd SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	HUMAN ANATOMY AND PHYSIOLOGY 2	BP201T	2nd SEM	CO1	Students would have studied about the gross morphology, structure and functions of nervous, respiratory, urinary and reproductive systems in the human body.
				CO2	They would have studied in detailed about energy and metabolism.
				CO3	Students would able to identify the various organs of different systems of human body.
				CO4	They would have performed and learnt about the experiments like neurological reflex, body temperature measurement
				CO5	They would have studied elaborate on interlinked mechanisms in the maintenance of normal functioning of human body
				CO6	They would have learnt and performed the experiments like Olfaction, gustation reflex and eye sight
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL ORGANIC CHEMISTRY I	BP202T	2nd SEM	CO1	Write the structure, name of the organic compound
				CO2	Knowledge about the type of isomerism
				CO3	Write the reaction, name the reaction and orientation of reactions
				CO4	Account for reactivity/stability of compounds
				CO5	Identify/confirm the unknown organic compound
				CO6	Knowledge about the naming reactions of carbonyl compounds



	Name of the Program:	B PHARM
	Year:	2nd SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	BIOCHEMISTRY	BP203T	2nd SEM	CO1	To understand the importance of metabolism of substrates.
				CO2	Acquire chemistry and biological importance of biological macromolecules.
				CO3	To acquire knowledge in qualitative and quantitative estimation of the biological macromolecules.
				CO4	To know the interpretation of data emanating from a Clinical Test Lab.
				CO5	To know how physiological conditions influence the structures and re-activities of biomolecules.
				CO6	To understand the basic principles of protein and polysaccharide structure.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PATHOPHYSIOLOGY	BP204T	2nd SEM	CO1	Knowledge of the structure and function of the major organ systems, including the molecular, biochemical and cellular mechanisms for maintaining homeostasis
				CO2	To describe the path physiological responses to infection, necrosis, stress, carcinogenesis
				CO3	To analyse the processes that lead to cell injury and describe its types and responses for healing, including inflammation.
				CO4	To analyze the concept of inflammation, Repair of wound and factors influencing Healing
				CO5	To study the immune response and evaluate some diseases that affect immunity
				CO6	To, recognize, define, and classify diseases based on pathogenic or morphological characteristics



	Name of the Program:	B PHARM
	Year:	3rd SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL ORGANIC CHEMISTRY 2	BP301T	3rd SEM	CO1	To write the structure, name and the type of isomerism of the organic compound
				CO2	To explain the reaction, name the reaction and orientation of reactions
				CO3	To discuss the reactivity and stability of organic reactions
				CO4	To describe the chemistry of fats and oils
				CO5	To explain the preparation, reactions and stability of Polynuclear and Alicyclic compounds
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHYSICAL PHARMACEUTICS 1	BP302T	3rd SEM	CO1	State the physicochemical properties of drug molecules, pH, and solubility
				CO2	Explain the role of surfactants, interfacial phenomenon and thermodynamics
				CO3	Describe the flow behavior of fluids and concept of complexation
				CO4	Analyze the chemical stability tests of various drug products
				CO5	Understand the physical properties of solutions, buffers, isotonicity, disperse systems and rheology.
				CO6	Understand of physicochemical properties of drugs including solubility, distribution, adsorption, and stability
				CO7	Have basic knowledge of pharmaceutical suspensions and colloids
				CO8	Have basic understanding of the pharmaceutical applications of various physical



	Name of the Program:	B PHARM
	Year:	3rd SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL MICROBIOLOGY	BP303T	3rd SEM	CO1	Recognize the different groups of microorganisms like bacteria, fungi and viruses and describe different physical and chemical requirements for growth of microorganism, their identification by staining and biochemical tests and preservation by different methods
				CO2	Name the different sterilization procedures useful in microbiology and manufacture of pharmaceuticals and explain the sterility testing of pharmaceuticals
				CO3	List the disinfectants used to maintain cleanliness in microbiology and manufacture of pharmaceuticals and discuss evaluation of disinfectants by different methods.
				CO4	Outline the cell culture technology and point out its role in pharmaceutical industries and research.
				CO5	Understand the physical properties of solutions, buffers, isotonicity, disperse systems and rheology.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL ENGINEERING	BP304T	3rd SEM	CO1	To know various unit operations used in Pharmaceutical industries
				CO2	To understand the material handling techniques.
				CO3	To perform various processes involved in pharmaceutical manufacturing process
				CO4	To carry out various test to prevent environmental pollution
				CO5	To appreciate and comprehend significance of plant lay out design



	Name of the Program:	B PHARM
	Year:	4TH SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL ORGANIC CHEMISTRY 3	BP401T	4TH SEM	CO1	Write the isomerism involved for organic compound and synthesis of isomers.
				CO2	Write the nomenclature, reaction, synthesis and medicinal uses of organic compounds
				CO3	Discuss the orientation and reactivity of organic compounds
				CO4	Explain the name of the reactions and understanding mechanism of reactions
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	Medicinal chemistry 1	BP402T	4th SEM	CO1	To know the structural activity relationship of different class of drugs
				CO2	Knowledge about the mechanism pathways of different class of medicinal compounds
				CO3	To understand the chemistry of drugs with respect to their pharmacological activity
				CO4	To write the chemical synthesis of some drugs



	Name of the Program:	B PHARM
	Year:	4TH SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHYSICAL PHARMACEUTICS 2	BP403T	4TH SEM	CO1	State the physicochemical properties of drug molecules, pH, and solubility
				CO2	Explain the role of surfactants, interfacial phenomenon and thermodynamics
				CO3	Describe the flow behavior of fluids and concept of complexation
				CO4	Analyze the chemical stability tests of various drug products
				CO5	Understand the physical properties of solutions, buffers, isotonicity, disperse systems and rheology
				CO6	Have basic knowledge of pharmaceutical suspensions and colloids
				CO7	Have basic understanding of the pharmaceutical applications of various physical
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACOLOGY 1	BP404T	4th SEM	CO1	Understand the pharmacological actions of different categories of drugs
				CO2	Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels
				CO3	Apply the basic pharmacological knowledge in the prevention and treatment of various diseases
				CO4	Appreciate correlation of pharmacology with other bio medical sciences



	Name of the Program:	B PHARM
	Year:	4TH SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACOGNOSY 1	BP405T	4TH SEM	CO1	To understand the basic concepts of Pharmacognosy like the history of Pharmacognosy, Current status, and classification of crude drugs
				CO2	To describe the awareness of detecting adulteration of drugs using morphological, microscopical, chemical, and physical Evaluation methods
				CO3	Generalized the knowledge concerning medicinal plants for cultivation, collection, processing, and storage of crude drugs
				CO4	To understand the concept of tissue culture and application in Pharmacognosy
				CO5	To learn the various systems of medicines, secondary metabolites, and their application in the pharmacy field



	Name of the Program:	B PHARM
	Year:	5TH SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	MEDICINAL CHEMISTRY 2	BP501T	5TH SEM	CO1	Helps in correlating between pharmacology of a disease and its mitigation or cure
				CO2	To write the chemical synthesis of some drugs.
				CO3	To know the structural activity relationship of different class of drugs
				CO4	Knowledge about the mechanism pathways of different class of medicinal compounds
				CO5	To acquire knowledge about the chemotherapy for cancer
				CO6	Have basic knowledge of pharmaceutical suspensions and colloids
				CO7	To understand the chemistry of drugs with respect to their pharmacological activity
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	INDUSTRIAL PHARMACY	BP502T	5TH SEM	CO1	To recall the knowledge of pre-formulation studies for dosage form development and its applications
				CO2	To prepare and coat tablets, capsules and pellets by various equipments and further they can evaluate in process and final product quality control.
				CO3	Summarize the preparation of parenterals and ophthalmic preparations and also can plan the selection of packing materials with their official requirements.
				CO4	Design formulations and manufacturing of liquid orals like suspensions and emulsions.



	Name of the Program:	B PHARM
	Year:	5TH SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACOLOGY 2	BP503T	5TH SEM	CO1	Students would have understood the mechanism of drug action and its relevance in the treatment of different diseases
				CO2	They would be trained with isolation of different organs/tissues from the laboratory animals by simulated experiments
				CO3	They would have observed the various receptor actions using isolated tissue preparation
				CO4	Students would appreciate the correlation of pharmacology with related medical sciences
				CO5	They would have understood the cell communication mechanism
				CO6	They would appreciate the newer targets of several diseases
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACOGNOSY 2	BP504T	5TH SEM	CO1	Illustrate the deferent methods to enhance production of secondary plant metabolites by using deferent precursors in biogenetic pathways.
				CO2	Outline the chemical and biological efficacy of drugs containing alkaloids, glycosides, essential oils, resins and tannins.
				CO3	Apply the deferent techniques to identify and estimate the phytoconstituents present in the herbal drugs
				CO4	Industrial production, estimation and



				utilization of phytoconstituents
	Name of the Program:		B PHARM	
	Year:		5TH SEMESTER	
	Course wise COs			


Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL JURISPRUDENCE	BP505T	5TH SEM	CO1	About Professional ethics
				CO2	They understood the various concepts of the Pharmaceutical Legislation in India.
				CO3	They understood the various parameters in the Drug and Cosmetic Act and rules
				CO4	They understood the various concepts of Drug policy, DPCO, Patent and Designing act
				CO5	They came to know about the labelling requirements and packaging guidelines for Drugs and Cosmetics.
				CO6	They came to know about the salient features of different laws which have been prescribed by the Pharmacy Council of India from time to time including International Laws



	Name of the Program:	B PHARM
	Year:	6TH SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	MEDICINAL CHEMISTRY 3	BP601T	6TH SEM	CO1	To develop an understanding of the physico-chemical properties of drugs
				CO2	To understand how current drugs were developed by using pharmacophore modeling and docking technique
				CO3	To acquire knowledge in the chemotherapy for cancer and microbial diseases and different anti-viral agents
				CO4	To acquire knowledge about the mechanism pathways of different class of medicinal compounds.
				CO5	To have been introduced to a variety of drug classes and some pharmacological properties
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACOLOGY 3	BP602T	6TH SEM	CO1	To study the pharmacology of various drugs acting on respiratory system and gastrointestinal tract
				CO2	To understand the chemotherapy of various infectious diseases and cancer
				CO3	To understand the basic knowledge of immunopharmacology, toxicology, biosimilars and chronopharmacology
				CO4	To understand the general principles of management and treatment of poisoning.



	Name of the Program:	B PHARM
	Year:	6TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	HERBAL DRUG TECHNOLOGY	BP603T	6TH SEM	CO1	Understand raw material as source of herbal drugs from cultivation to herbal drug product
				CO2	know the WHO and ICH guidelines for evaluation of herbal drugs
				CO3	Know the herbal cosmetics, natural sweeteners, nutraceuticals
				CO4	Appreciate patenting of herbal drugs, GMP
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	BIOPHARMACEUTICS AND PHARMACOKINETICS	BP604T	6TH SEM	CO1	Explain the principles and its applications
				CO2	Define methodology of various unit operation processes and its application in pharmaceutical industry
				CO3	Describe various mechanisms and equipment
				CO4	Explain metals used in pharmaceutical industry
				CO5	Discuss preventive measures of hazards



	Name of the Program:	B PHARM
	Year:	6TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACEUTICAL BIOTECHNOLOGY	BP605T	6TH SEM	CO1	State the importance of enzymes in the field of pharmacy and describe the different methods of enzyme immobilization and applications of immobilized enzymes
				CO2	List the salient features of rDNA technology and describe the use of rDNA technology in the production of biopharmaceuticals
				CO3	Identify the different types of immunity and explain the production of monoclonal antibodies, vaccines and blood products.
				CO4	State the different microbial gene transfer methods including mutation and explain the importance of blotting techniques in the detection of biomolecules
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	QUALITY ASSURANCE	BP606T	6TH SEM	CO1	Acquire knowledge on various quality assurance systems, processes and current regulatory guidelines related to manufacturing and distribution
				CO2	Address the quality issues and provide solutions needed to attain quality leadership in an environment of continual improvement
				CO3	Understand the importance of effective documentation
				CO4	To prepare professionally competent individuals with quality concept being engrained to achieve global quality standards in pharmaceutical industries



	Name of the Program:	B PHARM
	Year:	7TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	INSTRUMENTAL METHODS OF ANALYSIS	BP701T	7TH SEM	CO1	The basic theoretical knowledge of the instrumentation techniques available
				CO2	Theoretically understand the aspects of separation for multi components
				CO3	Practical skills for the analysis of drugs and excipients using various instrumentation techniques
				CO4	To make accurate analysis and report the results in defined formats.
				CO5	To learn documentation and express the observations with clarity
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	INDUSTRIAL PHARMACY II	BP702T	7TH SEM	CO1	Know the various pharmaceutical dosage forms and their manufacturing techniques
				CO2	Know various considerations in development of pharmaceutical dosage forms
				CO3	Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality



	Name of the Program:	B PHARM
	Year:	7TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	PHARMACY PRACTICE	BP703T	7TH SEM	CO1	Students will demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy
				CO2	Students will use knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.
				CO3	Students will effectively apply principles of drug store management and inventory control to medication use.
				CO4	Students will engage in innovative activities by making use of the knowledge of clinical trials
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	NOVEL DRUG DELIVERY SYSTEM	BP704T	7TH SEM	CO1	The various approaches for development of novel drug delivery systems
				CO2	The criteria for selection of drugs and polymers for the development of NTDS
				CO3	The formulation and evaluation of novel drug delivery systems



	Name of the Program:	B PHARM
	Year:	8TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	BIOSTATISTICS AND RESEARCH METHODOLOGY	BP801T	8TH SEM	CO1	Learn general research methodology
				CO2	Understand the basic concepts of biostatistics
				CO3	Learn different parametric and non-parametric tests
				CO4	Understand the functions of ethics committees in medical research
				CO5	Learn the guidelines for developing animal facilities
				CO6	Learn the guidelines for developing animal facilities
				CO7	Learn the guidelines for the experimentation on animals
				CO8	Understand the genesis of bioethics with special reference to Helsinki declaration
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	SOCIAL AND PREVENTIVE PHARMACY	BP802T	8TH SEM	CO1	Recognize the concepts and evaluation of public health
				CO2	Relate food to nutrition health, balanced diet, deficiencies and its prevention
				CO3	Illustrate sociocultural factors and its relation with health
				CO4	Identify avoidable habits for personal hygiene and health
				CO5	Explain the principles on the prevention and control of communicable and non-communicable diseases.
				CO6	Identify National health programs its objectives functioning and outcomes



	Name of the Program:	B PHARM
	Year:	8TH SEMESTER
	Course wise Cos	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	QUALITY CONTROL AND STANDARDIZATIONS OF HERBALS	BP803T	8TH SEM	CO1	Explain basic tests for drugs to obtain dosage form for pharmaceutical substances and medicinal plants
				CO2	Explain methods for evaluation of pharmaceutical substances, medicinal plants and commercial crude drugs along with WHO guidelines for quality control for herbal drugs
				CO3	Describe guidelines for cGMP, GAP, GMP and GLP for quality assurance of herbal drugs in industry
				CO4	Describe guidelines for quality control of herbal drugs and evaluation of safety and efficacy of herbal medicines.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
B PHARM	COSMETIC SCIENCE	BP804T	8TH SEM	CO1	Classify and define Cosmetics and Cosmeceuticals as per Indian and EU regulations
				CO2	Describe the role of cosmetic excipients and building blocks in the formulation of cosmetics
				CO3	Explain the structure and function of the skin, hair, teeth and gum
				CO4	Design cosmetics and cosmeceuticals that address the problems of dry skin, acne, dermatitis, prickly heat, wrinkles, blemishes, hair fall, Dandruff, body odour, bleeding gums, mouth odour, teeth discoloration and sensitive teeth.



PROGRAM OUTCOMES – PHARM D

<u>ATTRIBUTES</u>	<u>POs</u>
A.	Able to apply knowledge of pharmacy practice utilizing current information for the delivery of pharmaceutical care in optimizing treatment outcomes promoting quality medicine use in population.
B.	Able to appreciate regulatory aspects of drug trial design and critical analysis of drug use policy to promote drug discovery and development, distribution, and cost effective sale safe use of medicines.
C.	Able to apply cognitive skills, investigative approach, creative thinking to evaluate and interpret data related to medicine use, poison information, clinical and laboratory investigations, pharmaceutical care and practices
D.	Able to perform and engage professionally and as multidisciplinary team member at different areas of professional practice.
E.	Able to appreciate problem-based learning to address issues at professional care practice.
F.	Able to appreciate ethical practices, moral integrity and human values in personal and professional endeavours.
G.	Able to converse, write, interpret and interact effectively and scientifically for efficient professional practice
H.	Able to distinguish professional impact within local, national and global perspectives.
I.	Able to embark upon lifelong professional learning to adapt to ever changing professional and health care sceniro.
J.	Able to assimilate modern approaches to quality professional practice .
K.	Able to develop technique, tools and skills for resourceful deliverance of health care and professional practice.



PROGRAM SPECIFIC OUTCOMES – PHARM D


<u>Sr.No</u>	<u>PSOs</u>
I	<p>Knowledge: Enable graduates to understand the core and basic knowledge in different subjects of pharmaceutical sciences as per the requirement of pharmaceutical sectors.</p>
II	<p>Employment & Entrepreneur: Enable graduate to succeed in technical or professional careers in various pharmaceutical industry/institute or health care system</p>
III	<p>Professional Practice: Enable graduate to practice profession and adapt in a globe of constantly developing trends</p>
IV	<p>Lifelong Learning & Professional Ethics: Enable graduate to streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem</p>



PROGRAM EDUCATION OBJECTIVES – PHARM D


<u>Sr.No</u>	<u>PEOs</u>
1	To empower graduates with knowledge principles and practice of pharmaceutical care across the discipline through ambience of motivation that could impel excellence and career growth.
2	To train graduates in practice based skills to meet professional challenges in the delivery of health care.
3	To spur graduates in interpersonal skills, to value professional integrity and ethics and accustomed to lifelong learning
4	To foster and imbibe graduates to leadership and entrepreneurship qualities to serve health care system
5	To appreciate local and global needs of health care and health promotion with concern towards environment sustainability and protection



	Name of the Program:	PHARM D
	Year:	I
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	HUMAN ANATOMY AND PHYSIOLOGY	PD 1.1	I	CO1	Describe the gross morphology, structure and functions of various organs of the human body.
				CO2	Illustrate the various homeostatic mechanisms and their imbalances.
				CO3	Identify the various tissues and organs of different systems of human body.
				CO4	Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, ECG, heart rate, pulse and respiratory volume
				CO5	Appreciate coordinated working pattern of different organs of each system
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pham D	PHARMACEUTICS	PD 1.2	I	CO1	Know the historical background and development of profession of pharmacy and introduction to Dosage forms and Handling of Prescription
				CO2	Pharmaceutical calculations and understand basics concepts of powders and liquid dosage forms
				CO3	Understand formulation and evaluation of monophasic liquids and biphasic liquids
				CO4	Explain the formulation requirement and evaluation of suppositories and understand pharmaceutical incompatibility
				CO5	Understand the formulation and evaluation of Semisolid dosage forms



	Name of the Program:	PHARM D
	Year:	I
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	MEDICINAL BIOCHEMISTRY	PD 1.3	I	CO1	To understand the importance of metabolism of substrates.
				CO2	Acquire chemistry and biological importance of biological macromolecules.
				CO3	To acquire knowledge in qualitative and quantitative estimation of the biological macromolecules
				CO4	To know the interpretation of data emanating from a Clinical Test Ladate
				CO5	To know how physiological conditions influence the structures and re-activities of biomolecules.
				CO6	To understand the basic principles of protein and polysaccharide structure
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL ORGANIC CHEMISTRY	PD 1.4	I	CO1	To recall the nomenclature, properties and isomerism in organic compounds.
				CO2	To explain the preparation, reactions and stability of alkanes and alicyclic compounds.
				CO3	To study the kinetics, mechanism, stereochemistry of free radical, electrophilic, nucleophilic addition reactions and theory of resonance
				CO4	To compare reactivity, orientation and factors influencing aliphatic nucleophilic substitution with aromatic nucleophilic substitution.
				CO5	To explain the mechanism and applications of selected named



	Name of the Program:	PHARM D
	Year:	I
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL INORGANIC CHEMISTRY	PD 1.5	I	CO1	an ability to apply knowledge of mathematics, science, and pharmacy
				CO2	an ability to design and conduct experiments, as well as to analyze and interpret data
				CO3	an ability to function on multidisciplinary teams,
				CO4	an ability to identify, formulate, and solve pharmacy problems
				CO5	an understanding of professional and ethical responsibility.
				CO6	an ability to communicate effectively,
				CO7	the broad education necessary to understand the impact of pharmacy solutions in a global, economic, environmental, and societal context,
				CO8	a recognition of the need for, and an ability to engage in life-long learning
				CO9	a knowledge of contemporary issues, and
				CO10	An ability to use the techniques, skills, and modern pharmacy tools necessary for pharmacy practice.



	Name of the Program:	PHARM D
	Year:	II
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PATHOPHYSIOLOGY	PD 2.1	II	CO1	Knowledge of the structure and function of the major organ systems, including the molecular, biochemical and cellular mechanisms for maintaining homeostasis
				CO2	To describe the path physiological responses to infection, necrosis, stress, carcinogenesis
				CO3	To analyse the processes that lead to cell injury and describe its types and responses for healing, including inflammation.
				CO4	To analyze the concept of inflammation, Repair of wound and factors influencing Healing
				CO5	To study the immune response and evaluate some diseases that affect immunity
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL MICROBIOLOGY	PD 2.2	II	CO1	Recognize the necessity of classification of microbial world into different groups and describe the structure and function of different external and internal parts of a microbial cell
				CO2	Recognize the importance of different methods of sterilization including sterility testing and validation. Students shall be able to discuss the mechanism of action, applications and evaluation of chemical disinfectants.
				CO3	Interpret signs and symptoms of infectious diseases, their diagnosis and treatment



	Name of the Program:	PHARM D
	Year:	II
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOGNOSY AND PHYTOPHARMACEUTICALS	PD 2.3	II	CO1	Recognize the necessity of classification of microbial world into different groups and describe the structure and function of different external and internal parts of a microbial cell
				CO2	Comprehend the nutritional requirements, growth and cultivation of bacteria and virus. In addition discuss the different types of media required for the growth and preservation of aerobic and anaerobic bacteria & fungi and different methods for the isolation and identification of bacteria with emphasis to different staining techniques and biochemical reactions. Also, students can measure the bacteria population-both total and viable counts.
				CO3	Discuss different diagnostic tests, microbiological assay of antibiotics and vitamins, and standardization of vaccines and sera.
				CO4	Interpret signs and symptoms of infectious diseases, their diagnosis and treatment
				CO5	Recognize the importance of different methods of sterilization including sterility testing and validation. Students shall be able to discuss the mechanism of action, applications and evaluation of chemical disinfectants.



	Name of the Program:	PHARM D
	Year:	II
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOLOGY 1	PD 2.4	II	CO1	Describe the drug discovery and developmental approaches.
				CO2	Explain the Pharmacokinetic and Pharmacodynamic principles.
				CO3	Identify the various factors that may modulate the action of the drug.
				CO4	Write the classification and mechanism of action of various drugs and their effect on different systems.
				CO5	Explain the therapeutic uses and possible adverse reactions of drugs used in systemic illness of nervous, cardiac, respiratory and endocrine systems.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	COMMUNITY PHARMACY	PD 2.5	II	CO1	Students will provide patientcentered care to diverse patients using the best available evidence and in consideration of patients' circumstances to devise, modify, implement, document and monitor pharmacotherapy care plans, either independently or as part of healthcare team
				CO2	Students will demonstrate knowledge of the business and professional practice management skills in community pharmacies.
				CO3	Students will educate patients through counseling & provide health screening services to public
				CO4	Students will identify symptoms of minor ailments and provide appropriate medication



	Name of the Program:	PHARM D
	Year:	III
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOLOGY 2	PD 3.1	III	CO1	The students would have learnt about drugs used to treat coagulation disorders includes thrombosis, MI , DVT , PE and stroke
				CO2	The students would have learnt about drugs used to treat coagulation disorders includes thrombosis, MI , DVT , PE and stroke
				CO3	Apply the pharmacological knowledge in the prevention and treatment of various diseases caused by microbes including cancer and also understand the adverse effects of drugs & drug interactions.
				CO4	Students would have understood the principles of immunopharmacology, animal toxicology
				CO5	Students would have learnt in depth knowledge on cell, macromolecules, cell signaling, DNA replication and cell cycle
				CO5	Students will participate in prevention programs of communicable diseases
				CO6	They would would have learnt the importance of gene and its structure, genome, gene expression, gene sequencing, mapping and cloning of human



	Name of the Program:	PHARM D
	Year:	III
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL ANALYSIS	PD 3.2	III	CO1	Describe the theoretical principles and procedures for Electrometric methods of analysis such as potentiometry and conductometry. They can also able to apply the knowledge
				CO2	Assess and assure the quality of pharmaceutical processes by applying the knowledge of validation techniques
				CO3	Interpret the analytical data for the determination of kinetic studies, structure correlation, separation, identification and estimation of pharmaceutical compounds by using instrumental methods of analysis mainly IR, NMR, Mass and X- ray diffraction.
				CO4	Illustrate the theory, construction and working of instrumentation in absorption spectrophotometric techniques like UV-Visible, IR spectroscopy, atomic absorption, flourimetry, scattering methods like Nephelo-Turbidometry, emission spectrophotometric techniques such as flame photometry for the quantitative and qualitative analysis of pharmaceuticals



	Name of the Program:	PHARM D
	Year:	III
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOTHERAPEUTICS 2	PD 3.3	III	CO1	Able to describe the pathophysiology and management of infectious disease, musculoskeletal, cancer, renal and skin diseases Able to develop patient case based assessment skills
				CO2	Able to describe the quality use of medicines issues surrounding the therapeutic agents in the treatment of these diseases
				CO3	Able to develop clinical skills in the therapeutic management of these conditions
				CO4	Continue to develop communication skills and will provide patient – centered care to diverse patients using the evidence based medicine
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL JURISPRUDENCE	PD 3.4	III	CO1	About Professional ethics
				CO2	They understood the various concepts of the Pharmaceutical Legislation in India.
				CO3	. They understood the various parameters in the Drug and Cosmetic Act and rules
				CO4	They understood the various concepts of Drug policy, DPCO, Patent and Designing act
				CO5	They came to know about the labelling requirements and packaging guidelines for Drugs and Cosmetics.



	Name of the Program:	PHARM D
	Year:	III
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	MEDICINAL CHEMISTRY	PD 3.5	III	CO1	To understand the chemistry of drugs with respect to their biological activity
				CO2	To know the metabolism, adverse effect and therapeutic activity of drugs.
				CO3	To understand the different modern techniques of drug design
				CO4	To appreciate the SAR of some important drug classes
				CO5	To acquire knowledge in the chemotherapy for cancer and microbial diseases and different anti-viral agents.
				CO6	To have been introduced to a variety of drug classes and some pharmacological properties
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACEUTICAL FORMULATIONS	PD 3.6	III	CO1	Upon completion of the subject, the student shall be able to understand
				CO2	principle involved in the formulation of various pharmaceutical dosage forms
				CO3	prepare various pharmaceutical formulations
				CO4	perform an evaluation of pharmaceutical dosage forms
				CO5	understand and appreciate the concept of bioavailability and bioequivalence, their role in clinical situations



	Name of the Program:	PHARM D
	Year:	IV
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOTHERAPEUTICS 3	PD 4.1	IV	CO1	Gastrointestinal system: (Peptic ulcer disease, Gastro Esophageal Reflux Disease, Inflammatory bowel disease, Liver disorders - Alcoholic liver disease, Viral hepatitis including jaundice, and Drug induced liver disorders.
				CO2	List of drugs available, pharmacological actions, selection of drugs, therapeutic intervention and review of therapy
				CO3	. List of drugs available, pharmacological actions, selection of drugs, therapeutic intervention and review of therapy. Nervous system: (Epilepsy, Parkinsonism, Stroke, Alzheimer's disease,)
				CO4	List of drugs available, pharmacological actions, selection of drugs, therapeutic intervention and review of therapy.
				CO5	Psychiatry disorders: (Schizophrenia, Affective disorders, Anxiety disorders, Sleep disorders, Obsessive Compulsive disorders)
				CO6	List of drugs available, pharmacological actions, selection of drugs, therapeutic intervention and review of therapy.



	Name of the Program:	PHARM D
	Year:	IV
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	HOSPITAL PHARMACY	PD 4.2	IV	CO1	An ability to apply knowledge of mathematics, science, and pharmacy
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data,
				CO3	An ability to function on multidisciplinary teams
				CO4	An ability to identify, formulate, and solve pharmacy problems
				CO5	An understanding of professional and ethical responsibility
				CO6	An ability to communicate effectively
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	CLINICAL PHARMACY	PD 4.3	IV	CO1	Actively participate and engage as a healthcare team member to understand and value patient care needs
				CO2	Assure that patients' best interests are represented for potential medication use by integrating disease and drug knowledge
				CO3	Undertake drug therapy monitoring to Identify problems; explore and prioritize potential strategies to design, evaluate and implement a care plan
				CO4	Demonstrate the ability to retrieve,interpret, synthesise and summarise scientific information critically
				CO5	Apply standards, guidelines, best practices, and established processes related to safe and effective medication use for patient-centred care as the medication expert



	Name of the Program:	PHARM D
	Year:	IV
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	BIOSTATISTICS AND RESEARCH METHODOLOGY	PD 4.4	IV	CO1	Learn general research methodology
				CO2	Understand the basic concepts of biostatistics
				CO3	Learn different parametric and non-parametric tests
				CO4	Understand the functions of ethics committees in medical research.
				CO5	Construction and labeling of graphs.
				CO6	Computer applications in pharmacy.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	BIOPHARMACEUTICS AND PHARMACOKINETICS	PD 4.5	IV	CO1	Broader understanding about the concepts of biopharmaceutics and pharmacokinetics
				CO2	Ability to calculate the various pharmacokinetic parameters by using various mathematical models
				CO3	Ability to design a basic protocol for the conduct of BA/BE study and the interpretation of the BA/BE data
				CO4	Prepared to use the concepts of pharmacokinetic principles in the clinical contexts
				CO5	Ability to design and perform <i>in-vitro</i> dissolution studies for various drugs as per the standards of official monographs




	Name of the Program:		PHARM D		
	Year:		IV		
Course wise COs					
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	Clinical Toxicology	PD 4.6	IV	CO1	Demonstrate and understanding of the health and economic implications of toxic exposures, general toxicology principles and clinical management practice
				CO2	Contrast the pharmacologic actions of organophosphate insecticides, <u>atropine</u> , and pralidoxime
				CO3	Categorize the signs and symptoms of poisoning from antidepressant drugs with their pharmacologic actions, Radiation Poisoning, acid-base poisoning, plant poisoning, food poisoning etc
				CO4	Compare the rationale, indications, and adverse effects for the overdose of Heavy Metals(Arsenic, Lead, Mercury, Iron and Copper) and treatment
				CO5	Describe the general treatment measures with Venomous snake poisoning, first aid, and management of for snake poisoning
				CO6	Evaluate the general treatment measures with Substance abuse:Opioids,CNS stimulants - Amphetamine, CNS depressants,Etc,



	Name of the Program:	PHARM D
	Year:	V
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	Clinical Research	PD 5.1	V	CO1	To understand the new drug development process.
				CO2	To evaluate the regulatory and ethical requirements
				CO3	To evaluate the regulatory and ethical requirements
				CO4	To analyze the safety monitoring and reporting in clinical trials
				CO5	To evaluate the Management of trial coordination process
				CO6	To create the Designing of clinical trial documents and the ethical values to be observed during clinical trials
Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	PHARMACOEPIDEMIOLOGY AND PHARMACOECONOMICS	PD 5.2	III	CO1	Able to describe the methods used in Pharmacoepidemiology.
				CO2	Able to demonstrate competency in the design, conduct and evaluation of Pharmacoepidemiology studies
				CO3	Able to describe the methods used in Pharmacoeconomic analysis
				CO4	Able to demonstrate competency in the design, conduct and evaluation of Pharmacoeconomic studies
				CO5	Able to describe the methods used in Pharmacoeconomic evaluation



	Name of the Program:	PHARM D
	Year:	V
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
Pharm D	CLINICAL PHARMACOKINETICS AND PHARMACOTHERAPUTIC DRUG MONITORING	PD 5.3	V	CO1	Ability to apply the concepts of Pharmacokinetics to individualize the drug dosage regimen in clinical settings
				CO2	Ability to design a dosage regimen of a drug based on its route of administration
				CO3	Ability to design and implement pharmacokinetic services such as Intravenous to Oral conversion of dosage regimens
				CO4	Broader understanding about the significance of altered pharmacokinetics, Pharmacogenetics and Pharmacometrics
				CO5	Ability to adjust the dosage regimen for patients with renal / hepatic impairments
				CO6	Ability to assess the drug interaction issues in the clinical settings



PROGRAM OUTCOMES – M PHARM

ATTRIBUTES	POs
A.	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice.
B.	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
C.	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability,
D.	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care.
E.	An ability to identify, formulate, and solve pharmaceutical problems meeting professional challenges.
F.	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives.
G.	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.
H.	Ability to comprehend the impact of practice of Pharmacy in a global, economic, environmental, and societal context.
I.	Recognition of the need for, and an ability to engage in life-long learning in consonance with latest advances in professional field to serve the community better
J.	An understanding of knowledge of contemporary issues on the research, development and manufacturing technology and use of pharmaceutical products in population
K.	An ability to employ the techniques, skills, and modern tools necessary for professional practice , research and development.



PROGRAM SPECIFIC OUTCOMES – M PHARM

<u>Sr.No</u>	<u>PSOs</u>
I	<p>Knowledge: Enable graduates to understand the core and basic knowledge in different subjects of pharmaceutical sciences as per the requirement of pharmaceutical sectors.</p>
II	<p>Employment & Entrepreneur: Enable graduate to succeed in technical or professional careers in various pharmaceutical industry/institute or health care system</p>
III	<p>Professional Practice: Enable graduate to practice profession and adapt in a globe of constantly developing trends</p>
IV	<p>Lifelong Learning & Professional Ethics: Enable graduate to streams a lifelong career of personal and practicing professional growth with ethical codes and self esteem</p>



PROGRAM EDUCATION OBJECTIVES – M PHARM


<u>Sr.No</u>	<u>PEOs</u>
1	To progress in professional specialization leading to Master degree so as to increase inclination for higher education and research studies.
2	To acquire knowledge, skills and techniques to identify analyze and solve realistic problems at diverse area of professional practice
3	To cater needs of society, industry, health care and to contribute in R&D
4	To adapt professional values, morality, ethics and interpersonal skills to practice profession
5	To Comprehend current national and global issues in pharmacy profession and foster lifelong learning



	Name of the Program:	M PHARM PHARMACEUTICS
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTI CAL ANALYTICAL TECHNIQUES	MPA101	1st SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO4	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care
				CO5	An ability to identify, formulate and solve pharmaceutical problems meeting professional challenges
				CO6	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives
				CO7	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.
				CO8	Ability to comprehend the impact of practice of Pharmacy in a global, economic, environmental, and societal context



	Name of the Program:	M PHARM PHARMACEUTICS
	Year:	1st SEMESTER
	Course wise Cos	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODIFIED DRUG DELIVERY SYSTEM	MPH101	1st SEM	CO1	Vaccine delivery and different mode of application approach for clinical use
				CO2	Drug delivery system give a detailed information transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effect
				CO3	They know the different types of Drug carrier used in the process of drug delivery which serves to improve the selectivity, effectiveness, and/or safety of drug administration.
				CO4	Recent developments in protein and peptide for parenteral delivery approaches will give new dimension of drug deliver for antibiotics, insulin, etc.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTICS	MPH102	1st SEM	CO1	To apply the knowledge og preformulation studies for the dosage form development.
				CO2	To apply the knowledge of optimization techniques to formulation processing and development.
				CO3	To use the knowledge of validation techniques as per internationally accepted guidelines.
				CO4	To demonstrate the principles of cGMP and industrial management during planning of industrial Quality management.



	Name of the Program:	M PHARM PHARMACEUTICS
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACEUTICS REGULATORY AFFAIR	MPH103	1st SEM	CO1	The Concepts of innovator and generic drugs, drug development process
				CO2	The Regulatory guidance's and guidelines for filing and approval process
				CO3	Preparation of Dossiers and their submission to regulatory agencies in different countries
				CO4	Post approval regulatory requirements for actives and drug products
				CO5	Submission of global documents in CTD/ eCTD formats
				CO6	Clinical trials requirements for approvals for conducting clinical trials
				CO7	Pharmacovigilance and process of monitoring in clinical trials



	Name of the Program:	M PHARM PHARMACEUTICS
	Year:	2ND SEMESTER
	Course wise Cos	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	MPH201	2ND SEM	CO1	Molecular Pharmaceutics (Nano Tech and Targeted DDS)
				CO2	Advanced Biopharmaceutics & Pharmacokinetics
				CO3	Computer Aided Drug Delivery System
				CO4	Cosmetic and Cosmeceuticals
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Advanced Biopharmaceutics & Pharmacokinetics	MPH202	2ND SEM	CO1	The basic concepts in biopharmaceutics and pharmacokinetics.
				CO2	The use raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination
				CO3	The critical evaluation of biopharmaceutic studies involving drug product equivalency
				CO4	The potential clinical pharmacokinetic problems and application of basics of pharmacokinetic



	Name of the Program:	M PHARM PHARMACEUTICS
	Year:	2ND SEMESTER
	Course wise Cos	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Computer Aided Drug Delivery System	MPH203	2 ND SEM	CO1	To Overview the concepts of computers in pharmaceutical research and development and QBD
				CO2	To study the basic concepts of computational modeling of drug disposition and introduction to modeling techniques including drug absorption, solubility, permeation, ADME, Active transport.
				CO3	To gain the knowledge of computer aided formulation development and to know the optimization parameters and factorial design.
				CO4	To understand the aspects of biopharmaceutical characterization through computer aided techniques.
				CO5	To go through the advantages and disadvantages of artificial intelligence and robotics and to understand the basics of fluid dynamics and the challenges and opportunities.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Cosmetic and Cosmeceuticals	MPH204	2 ND SEM	CO1	Know regulatory requirements relating to manufacture of cosmetics, import of cosmetics and misbranded and spurious cosmetics.
				CO2	Understand the biological aspects of structure of skin relating problems and structure of hair and hair growth cycle and common problems associated with oral cavity
				CO3	Explain and understand building blocks for different product formulations of cosmetics and cosmeceuticals
				CO4	Understand and design the different cosmetical products addressing skin, hair and oral cavity



	Name of the Program:	M PHARM Pharmaceutical Chemistry
	Year:	1st SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTI CAL ANALYTICAL TECHNIQUES	MPA101	1st SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO4	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care
				CO5	An ability to identify, formulate and solve pharmaceutical problems meeting professional challenges
				CO6	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives
				CO7	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.



	Name of the Program:	M PHARM Pharmaceutical Chemistry
	Year:	1ST SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED ORGANIC CHEMISTRY 1	MPC101	1ST SEM	CO1	To explain various reaction mechanisms involved in the synthesis of various drug molecules.
				CO2	To acquire adequate knowledge and necessary practical skills.
				CO3	To discuss and understanding reaction mechanisms, identification of lead molecules and their eventual refinement for development as drugs.
				CO4	To identify the natural and synthetic molecules used as therapeutic agents
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED MEDICINAL CHEMISTRY	MPC102	1ST SEM	CO1	To identify the different types of organic reactions in the synthesis of drug molecules.
				CO2	To understand the mechanism of action of drugs belonging to the classes of Anti-hypertensive, Psychoactive.
				CO3	Anticonvulsant, H1/H2 receptor antagonistic, COX1 & COX2 inhibiting, Adrenergic & Cholinergic, Antineoplastic and Antiviral agents.
				CO4	A detailed understanding of the processes involved in the design, development and discovery of medicinal compounds.



	Name of the Program:	M PHARM Pharmaceutical Chemistry
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	CHEMISTRY OF NATURAL PRODUCTS	MPC103	1st SEM	CO1	To attain detailed knowledge about chemistry of medicinal compounds from natural origin.
				CO2	To understand general methods of structural elucidation of medicinally active natural compounds.
				CO3	To attain knowledge regarding isolation and purification of medicinal compounds from natural origin.
				CO4	To characterize products by physical a spectroscopic means including IR, NMR, GC, and MS.
				CO5	To identify different types of natural products, their occurrence, structure, biosynthesis and properties.
				CO6	To know the use of natural products as starting materials.



	Name of the Program:	M PHARM Pharmaceutical Chemistry
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED SPECTRAL ANALYSIS	MPC201	2ND SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives.
				CO4	An ability to employ the techniques, skills, and modern tools necessary for professional practice, research and development
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED ORGANIC CHEMISTRY 2	MPC202	2ND SEM	CO1	To identify the different types of organic reactions in the synthesis of drug molecules
				CO2	To discuss the applications of intermediates to account for stability/reactivity/orientation in designing new drug molecules
				CO3	The stereo chemical aspects of organic compounds and its reactions to facilitate to synthesize the selective isomer
				CO4	To understand the applications of reaction mechanism in the synthesis of new chemical entities
				CO5	To identify and isolate the natural and synthetic molecules used as



	Name of the Program:	M PHARM Pharmaceutical Chemistry
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	COMPUTER AIDED DRUG DESIGN	MPC203	2ND SEM	CO1	To Overview the concepts of computers in pharmaceutical research and development and QBD
				CO2	To study the basic concepts of computational modeling of drug disposition and introduction to modeling techniques including drug absorption, solubility, permeation, ADME, Active transport.
				CO3	To gain the knowledge of computer aided formulation development and to know the optimization parameters and factorial design.
				CO4	To understand the aspects of biopharmaceutical characterization through computer aided techniques.
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACEUTICAL PROCESS CHEMISTRY	MPC204	2ND SEM	CO1	To develop synthetic routes that is safe, cost-effective, environmentally friendly, and efficient
				CO2	To impart knowledge on the development and optimization of a synthetic route/s
				CO3	The pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development phase.
				CO4	To create and carry out work up and separation procedure.
				CO5	To predict the outcome of organic reactions using a basic understanding of the general reactivity of functional groups and mechanism.



	Name of the Program:	M PHARM Pharmacognosy
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	MPA101	1st SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO4	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care
				CO5	An ability to identify, formulate and solve pharmaceutical problems meeting professional challenges
				CO6	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives
				CO7	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.



	Name of the Program:	M PHARM Pharmacognosy
	Year:	1ST SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED PHARMACOGNOSY 1	MPG101	1ST SEM	CO1	List the various classes of phytoconstituents and describe their biosynthesis, isolation and characterization
				CO2	Outline the process of drug discovery from plants and discuss the various steps involved in drug development
				CO3	Compare the different methods of extraction and fractionation of phytoconstituents
				CO4	Describe the phytochemical fingerprinting of extracts by chromatography techniques
				CO5	Explain the <i>in vitro</i> and <i>in vivo</i> screening techniques for detection of bioactive phytoconstituents
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHYTOCHEMISTRY	MPG102	1ST SEM	CO1	List the various classes of phytoconstituents and describe their biosynthesis, isolation and characterization
				CO2	Outline the process of drug discovery from plants and discuss the various steps involved in drug development
				CO3	Compare the different methods of extraction and fractionation of phytoconstituents
				CO4	Describe the phytochemical fingerprinting of extracts by chromatography techniques
				CO5	Explain the <i>in vitro</i> and <i>in vivo</i> screening techniques for detection of bioactive phytoconstituents



	Name of the Program:	M PHARM Pharmacognosy
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	INDUSTRIAL PHARMACOGN OSTICAL TECHNOLOGY	MPG103	1st SEM	CO1	Starting up of new herbal drug industry.
				CO2	Regulatory requirements/ documentation for starting a new natural drug industry
				CO3	Export and import policies in herbal industry sector
				CO4	To understand the concept of ISO documentation, GMP / GLP in Herbal drug sector and Monograph preparation
				CO5	To develop Develop Competency in testing of herbal drugs and Knowledge about IPR and Patenting



	Name of the Program:	M PHARM Pharmacognosy
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MEDICINAL PLANT BIOTECHNOLOGY	MPG201	2ND SEM	CO1	State the role of plant biotechnology and rDNA technology in the field of pharmacy.
				CO2	Explain the different techniques of plant tissue culture and their applications
				CO3	Discuss the various strategies for improving the yield of secondary metabolites
				CO4	Describe the genetic engineering technique for the production of transgenic plants and analysis of plant genomes
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED PHARMACOGNOSY 2	MPG202	2ND SEM	CO1	Definition and objectives of Pharmacognosy. Information about the use of Medicinal plants. Plant as a source of drugs of pharmaceutical interest
				CO2	Biogenesis and biological activity of natural products coming from mevalonate: terpenoids and steroids
				CO3	Occurrence, isolation, characterization, identification, biosynthesis and activity profile of biologically active natural products
				CO4	Extraction procedures for natural compounds, their differences and their applications the main pathways of aromatic amino acids, alkaloids, phenylpropanoids
				CO5	The biological activities of several compounds belonging to polyketides, terpenoids and steroids; and their traditional use and application in pharmaceutical and/or nutraceutical field



	Name of the Program:	M PHARM Pharmacognosy
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	INDIAN SYSTEM OF MEDICINE	MPG203	2ND SEM	CO1	To understand Fundamental concepts and different dosage forms of the ISM. Study of Ayurvedic Pharmacopoeia
				CO2	Study of the basic principles and treatment modalities. Study of Yoga and its different streams
				CO3	To study salient features of the techniques of preparation of some of the important class of Formulations as per Ayurveda, Siddha, 13 Homeopathy and Unani Pharmacopoeia
				CO4	To understand Good Manufacturing Practice of Indian systems of medicine, Components of GMP (Schedule – T) and its objectives
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	HERBAL COSMETICS	MPG204	2ND SEM	CO1	Understand raw material as source of herbal drugs from cultivation to herbal drug product
				CO2	know the WHO and ICH guidelines for evaluation of herbal drug
				CO3	know the herbal cosmetics, natural sweeteners, nutraceuticals
				CO4	appreciate patenting of herbal drugs, GMP



	Name of the Program:	M PHARM Pharmacology
	Year:	1st SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTI CAL ANALYTICAL TECHNIQUES	MPA101	1st SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO4	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care
				CO5	An ability to identify, formulate and solve pharmaceutical problems meeting professional challenges
				CO6	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives
				CO7	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.



	Name of the Program:	M PHARM Pharmacology
	Year:	1ST SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	ADVANCED PHARMACOLOGY-1	MPL101	1ST SEM	CO1	Discuss the pathophysiology and pharmacotherapy of certain diseases
				CO2	Explain the mechanism of drug actions at cellular and molecular level
				CO3	Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS-I	MPL102	1ST SEM	CO1	Appraise the regulations and ethical requirement for the usage of experimental animals.
				CO2	Describe the various animals used in the drug discovery process and good laboratory practices in maintenance and handling of experimental animals
				CO3	Describe the various newer screening methods involved in the drug discovery process
				CO4	Appreciate and correlate the preclinical data to humans



	Name of the Program:	M PHARM Pharmacology
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Cellular and Molecular Pharmacology	MPL103	1st SEM	CO1	Explain the receptor signal transduction processes.
				CO2	Explain the molecular pathways affected by drugs.
				CO3	Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process.
				CO4	Demonstrate molecular biology techniques as applicable for pharmacology



	Name of the Program:	M PHARM Pharmacology
	Year:	2ND SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Advanced Pharmacology-II	MPL201	2ND SEM	CO1	Explain the mechanism of drug actions at cellular and molecular level
				CO2	Discuss the Pathophysiology and pharmacotherapy of certain diseases
				CO3	Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Pharmacological and Toxicological Screening Methods-II	MPL202	2ND SEM	CO1	Explain the various types of toxicity studies.
				CO2	Appreciate the importance of ethical and regulatory requirements for toxicity studies.
				CO3	Demonstrate the practical skills required to conduct the preclinical toxicity studies.



	Name of the Program:	M PHARM Pharmacology
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Principles of Drug Discovery	MPL203	2ND SEM	CO1	Explain the various stages of drug discovery
				CO2	Appreciate the importance of the role of genomics, proteomics and bioinformatics in drug discovery
				CO3	Explain various targets for drug discovery
				CO4	Explain various lead seeking method and lead optimizationa



	Name of the Program:	M PHARM Quality Assurance
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	MPA101	1st SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to design, synthesis, isolate a drug and drug formulation system, component, or drug use process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
				CO4	An ability to function on multidisciplinary teams, at different organizational levels of academic, industry, research and health care
				CO5	An ability to identify, formulate and solve pharmaceutical problems meeting professional challenges
				CO6	An understanding of pharmacy professional values and ethical responsibility in discharging professional obligations at society, national and global perspectives
				CO7	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level.
				CO8	Ability to comprehend the impact of practice of Pharmacy in a global, economic, environmental, and societal context



	Name of the Program:	M PHARM Quality Assurance
	Year:	1ST SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	QUALITY MANAGEMENT SYSTEM	MQA101	1ST SEM	CO1	The student will understand the quality parameters and quality attribute in Pharmaceutical industry sectors
				CO2	By studying and practicing the guidelines iso, nabl and other regulatory agencies student will predicts the current need of changes
				CO3	It provide the idea in the customers expectations in the quality pharmaceutical product.
				CO4	Student will know the importance of the quality of medicines in the public
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	QUALITY CONTROL AND QUALITY ASSURANCE	MQA102	1ST SEM	CO1	Apply fundamentals of pharmaceutical chemistry, Pharmaceutics, Pharmaceutical technology, Pharmacy practice, Pharmacology, Pharmacognosy and Quality assurance to elucidate and regulate drug discovery, drug development care practice
				CO2	An ability to design and conduct experiments, as well as to analyze and interpret data of appropriate pharmaceutical system or process
				CO3	An ability to communicate effectively both verbal and written to gain recognition at professional circle and societal level
				CO4	Ability to comprehend the impact of practice of Pharmacy in a global, economic, environmental, and societal context



	Name of the Program:	M PHARM Quality Assurance
	Year:	1st SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PRODUCT DEVELOPMENT AND TECHNOLOGY TRANSFER	MQA103	1st SEM	CO1	To apply the knowledge to develop new procedures of their own design of Pilot layouts
				CO2	To understand the Quality by design practices of sterile and non sterile dosage forms
				CO3	To understand the practices of packaging technology
				CO4	To understand the Regulatory requirements in drug development stages and phases of technology transfer.



	Name of the Program:	M PHARM Quality Assurance
	Year:	2ND SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	HAZARDS AND SAFETY MANAGEMENT	MQA201	2ND SEM	CO1	To understand the energy resources in the to make eco-friendly industry environment
				CO2	The course knowledge useful to Find hazards in work atmosphere
				CO3	It creates the passage to understand, Determine and to take control measures to eliminate or minimize the level of the risks
				CO4	It support the student to recognize the control measures to eliminate or minimize the level of the risks
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	Pharmaceutical Validation	MQA202	2ND SEM	CO1	The Students learn on the importance of validation
				CO2	The student learns on the importance of patent and intellectual property rights
				CO3	The students are trained on the qualification aspects of instruments
				CO4	The importance of calibration to be performed for the instruments
				CO5	The various validation aspects to be carried out in the industry



	Name of the Program:	M PHARM Quality Assurance
	Year:	2ND SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	AUDITS AND REGULATORY COMPLIANCE	MQA203	2ND SEM	CO1	The student gain knowledge on the importance of auditing in pharmaceutical preparation.
				CO2	The various forms of auditing are and how an audit process happens are briefed to the students
				CO3	Preparation of various audit checklists for the auditing
				CO4	When and what are the areas the auditing to be carried is taught to the student
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACEUTICAL MANUFACTURING TECHNOLOGY	MQA204	2ND SEM	CO1	To understand the common practice in the pharmaceutical industry developments
				CO2	To understand the practices of aseptic process and non sterile manufacturing technology.
				CO3	To understand the practices of packaging technology.
				CO4	To understand the principles and implementation of Quality by design (QbD) and process analytical technology(PAT) in pharmaceutical manufacturing



	Name of the Program:	M PHARM Pharmacy Practice
	Year:	1ST SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	CLINICAL PHARMACY PRACTICE	MPP101	1ST SEM	CO1	Actively participate and engage as a healthcare team member to understand and value patient care needs
				CO2	Assure that patients' best interests are represented for potential medication use by integrating disease and drug knowledge
				CO3	Undertake drug therapy monitoring to Identify problems; explore and prioritize potential strategies to design, evaluate and implement a care plan
				CO4	Demonstrate the ability to retrieve,interpret, synthesise and summarise scientific information critically
				CO5	Apply standards, guidelines, best practices, and established processes related to safe and effective medication use for patient-centered care as the medication expert
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACOTHERAPEUTICS 1	MPP102	1ST SEM	CO1	Able to establish the Pharmacist - Patient Relationship and develop Patient case based Assessment Skills
				CO2	Able to intercept Drug related- Problem and exhibit skill to solve the problems
				CO3	Able to exhibit skills for establishing therapeutic outcomes for drug and disease related problem and develop therapeutic decision making skills
				CO4	Able to assess pharmacotherapeuticneeds of the patients and develop Individualized therapeutic Regimen



	Name of the Program:	M PHARM Pharmacy Practice
	Year:	1ST SEMESTER
	Course wise COs	


Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	HOSPITAL AND COMMUNITY PHARMACY	MPP103	1ST SEM	CO1	Understand the organizational structure of hospital pharmacy
				CO2	Understand drug policy and drug committees
				CO3	Know about procurement & drug distribution practices
				CO4	Know the admixtures of radiopharmaceuticals
				CO5	Understand the community pharmacy management
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	CLINICAL RESEARCH	MPP104	1ST SEM	CO1	Know the new drug development process
				CO2	Understand the regulatory and ethical requirements.
				CO3	Appreciate and conduct the clinical trials activities
				CO4	Know safety monitoring and reporting in clinical trials



	Name of the Program:	M PHARM Pharmacy Practice
	Year:	2ND SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PRINCIPLES OF QUALITY USE OF MEDICINES	MPP201	2ND SEM	CO1	Able to demonstrate an understanding of the principles and elements of Quality Use of Medicines
				CO2	Understand the benefits and risks of medicine use and apply it in profession of pharmacy
				CO3	Able to recognize regulatory aspects of quality use of medicines and will contribute to on-going improvement
				CO4	Able to identify and advocate solutions to medication related problems and promote quality use of medicines
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACOTHERAPEUTICS 2	MPP202	2ND SEM	CO1	Establishing the Pharmacist - Patient Relationship
				CO2	Developing Patient case based Assessment Skills
				CO3	Improving Drug related-Problem Identification and Problem Solving Skills
				CO4	Developing Therapeutic Decision Making Skills
				CO5	Determining Rational Pharmacotherapeutic Alternatives



	Name of the Program:	M PHARM Pharmacy Practice
	Year:	2ND SEMESTER
	Course wise COs	

Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	CLINICAL PHARMACOKINETICS AND THERAPEUTIC DRUG MONITORING	MPP203	2ND SEM	CO1	To explain various reaction mechanisms involved in the synthesis of various drug molecules
				CO2	To acquire adequate knowledge and necessary practical skills
				CO3	To discuss and understanding reaction mechanisms, identification of lead molecules and their eventual refinement for development as drugs
				CO4	To identify the natural and synthetic molecules used as therapeutic agents
Program	Course name	Course Code	Year	Course Outcomes (COs)	
M PHARM	PHARMACOEPIDE MIOLOGY AND PHARMACOECONO MICS	MPP204	2ND SEM	CO1	Able to describe the methods used in Pharmacoepidemiology
				CO2	Able to demonstrate competency in the design, conduct and evaluation of Pharmacoepidemiology studies
				CO3	Able to describe the methods used in Pharmaco-economic analysis
				CO4	Able to demonstrate competency in the design, conduct and evaluation of Pharmaco-economic studies
				CO5	Able to demonstrate competency in the design, conduct and evaluation of Pharmacoepidemiology studies