



**2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the Institution are Stated and displayed on website and attainment of Pos and Cos are evaluated**

**PO 1 Pharmaceutical Sciences knowledge:** Apply the knowledge of mathematics, science, pharmaceutical fundamentals, and a Pharmacy specialization to the solution of complex Pharmaceutical problems.

**PO 2 Physicochemical properties of Formulations:** The knowledge of importance of physical properties of the different pharmaceutical ingredients and the factors influencing them is very valuable for pharmaceutical dosage form design.

**PO 3 Unit Operations:** Pharm. Engineering renders knowledge about the basic unit operations that are taking place in pharmaceutical industry and the different factors associated with it. This information is useful for both pharmaceutics and pharmaceutical engineering.

**PO 4 Entrepreneurship:** The knowledge on different pharmaceutical dosage forms are imparted on students. This knowledge comes while handling a pharmacy or a manufacturing unit or in the further courses.

**PO 5 Design/Development of solutions:** The information on solid dosage forms like tablets and capsules, their formulation and quality control serves as an important prerequisite for dosage form design.

**PO 6 Application oriented Knowledge:** The knowledge of biopharmaceutics enables the students to visualize the effect of pharmacokinetic (ADMET) parameters on the biological effect of the drug. The correlation of pharmacokinetics and pharmacodynamics is thus introduced and is experimentally explained to them.


**PO 7 Environment and Sustainability:** Enable extension of pharmaceutical dosage forms, and enables the students to learn about different packaging materials used in pharmaceutical industry and the factors governing their use.

**PO 8 Conduct investigations of complex problems:** To understand biopharmaceutical principles and pharmacokinetic principles through different compartment models, multiple dosage regimens, non-linear pharmacokinetics, and assessment of bioavailability and bioequivalence

**PO9 Effective Citizenship:** Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

**PO10 Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them



  
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**PSO1:** Impart knowledge on the novel drug delivery systems, approaches, criteria for selection of polymers and drugs and their formulation and evaluation

**PSO2:** To impart knowledge and skills in generic drug development, various regulatory filings the approval process, and concept of generics across the globe



  
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## M PHARM I&II SEM COURSE OUTCOMES FOR THE ACADEMIC YEAR 2022-23

### PHARMACEUTICS

S.NO	YEAR/SEM	COURSE NAME	COURSE OUTCOMES
1.	I-I	<b>APPLIED BIOPHARMACEUTICS AND PHARMACOKINETICS</b>	CO1: Biopharmaceutics and pharmacokinetics and their significance.
			CO2: Use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, and elimination.
			CO3: To understand the bioavailability and bioequivalence of drug products and their significance.
			CO4: Develop entrepreneurship skills that support the growth of the Pharmaceutical Industry
2.	I-I	<b>MODERN PHARMACEUTICS</b>	CO1: Knowledge on pre formulation concepts and optimization techniques
			CO2: Knowledge on pharmaceutical validation
			CO3: Knowledge on cGMP & Industrial Management
			CO4: Knowledge on compression and compaction Knowledge on compression and compaction
3.	I-I	<b>ADVANCED PHYSICAL PHARMACEUTICS</b>	CO1: The students will know particle size analysis method, solid dispersion, physics of tablets, polymer classification and its applications
			CO2: student will also know the stability calculations, shelf life calculations and accelerated stability studies.
			CO3: They also know the rheology, absorption related to liquids and semi-solid dosage forms.
			CO4: They also know the factors affecting the dissolution and solubility in related to



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			invitro/invivo correlations
4	I-I	PHARMACEUTICAL VALIDATION	CO1: Explain the aspect of validation
			CO2: Carryout validation of manufacturing processes
			CO3: Apply the knowledge of validation to instruments and equipments
5.	I-I	RESEARCH METHODOLOGY AND IPR	CO1: Understand research problem formulation.
			CO2: Analyze research related information.
			CO2: Follow research ethics
			CO4: Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.

S.NO	YEAR/SEM	COURSE NAME	COURSE OUTCOMES
1.	I-II	MODERN PHARMACEUTICS - II	CO1: students will understand the planning of pilot plant techniques used for all pharmaceutical dosage forms such as tablets, capsules, parenterals, aerosols, cosmetics and nutraceuticals
2.	I-II	ADVANCED DRUG DELIVERY SYSTEMS	CO1: Students will select the drugs for CDDS design of the formulation fabrication of systems of above drug delivery systems with relevant applications.
3.	I-II	HERBAL COSMETICS	CO1: Students will learn about the raw materials used in herbal cosmetics and get exposed to various preparations of herbal cosmetics.
4.	I-II	NUTRACEUTICALS	CO1: Helps the student to understand the importance of Nutraceuticals in various common problems with the concept of free radicals





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S.NO	YEAR/SEM	COURSE NAME	COURSE OUTCOMES
1.	II-I	SCALE UP AND TECHNOLOGY TRANSFER	CO1: Manage the scale up process in pharmaceutical industry.
			CO2: Assist in technology transfer.
			CO3: To establish safety guidelines, which prevent industrial hazards.
2.	II-I	COSMETIC SCIENCE	CO1: Formulate and evaluate various cosmeceutical product.
			CO2: Know the key components used in different cosmeceutical products.
			CO3: Recognize the role of ingredients and herbs used in cosmeceutical products.



  
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## ANALYSIS

S.NO	YEAR/SEM	COURSE NAME	COURSE OUTCOMES
1.	I-I	<b>MODERN PHARMACEUTICAL ANALYSIS</b>	CO1: The quantitative determination of various organic compounds is clearly understood. The spectral analysis, dissolution parameters and microbial assays are also learned.
2.	I-I	<b>PHARMACEUTICAL FOOD ANALYSIS</b> -	CO1: Pharmaceutical food analysis.
			CO2: Food additives.
			CO3: Pesticides in food Pharmaceuticals (API & Dosage forms).
			CO4: Also student shall have the knowledge on food regulations and legislations.
3.	I-I	<b>ADVANCED PHARMACEUTICAL ANALYSIS</b>	CO1: The quantitative determination of various organic compounds is clearly understood. The spectral analysis, dissolution parameters and microbial assays are also learned.
4	I-I	<b>PHARMACEUTICAL VALIDATION</b>	CO1: Explain the aspect of validation
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S.NO	YEAR/SEM	COURSE NAME	COURSE OUTCOMES
1.	I-II	<b>ADVANCED INSTRUMENTAL ANALYSIS – I</b>	CO1: students will come out with the thorough knowledge of various spectral aspects of X-Ray, IR, SEM, ORD etc which help them in further projects works and also industrial opportunities.
2.	I-II	<b>PHARMACEUTICAL QUALITY CONTROL AND QUALITY ASSURANCE</b>	CO1: study of this subject builds the confidence in the minds on the students to develop and formulate high quality pharmaceutical products
3.	I-II	<b>HERBAL COSMETICS</b>	CO1: Students will learn about the raw materials used in herbal cosmetics and get exposed to various preparations of herbal cosmetics.
4.	I-II	<b>NUTRACEUTICALS</b>	CO1: Helps the student to understand the importance of Nutraceuticals in various common problems with the concept of free radicals

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1.	II-I	<b>SCALE UP AND TECHNOLOGY TRANSFER</b>	CO1: Manage the scale up process in pharmaceutical industry. CO2: Assist in technology transfer. CO3: To establish safety guidelines, which prevent industrial hazards.
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