

**M.Pharmacy 1st Year 1st Semester (Pharmaceutical chemistry): University Regulation R22**

S.NO	Course	Course outcomes
1	<b>ADVANCED ORGANIC CHEMISTRY – I (Professional Core – I)</b>	CO1: - The student would be able to design of new chemical entities (NCE) for the treatment of different diseases in new drug discovery Program. CO2: - The student would be in position to a stereoselective synthesis of new chemical entities (NCE) for the treatment of different diseases in new drug discovery Program.
2	<b>ADVANCED MEDICINAL CHEMISTRY – I</b>	CO1: - The student would be able to have detailed knowledge of computer aided drug design CO2: - The student would be able to which is useful to involve in new drug discovery Program by the utilization of natural leads and also with the help of structure-based drug design.
3	<b>CHEMISTRY OF NATURAL PRODUCTS</b>	CO1: - The student would be able to explore the natural lead compounds for the treatment of different diseases like cancer, malaria, diabetes etc. CO2: - The student would be able to synthesis the natural lead compounds for the

		treatment of different diseases like cancer, malaria, diabetes etc.
4	<b>MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES</b>	CO1: - The student would be able to apply the theories in the Analysis of various bulk drugs and their formulations. CO2: - The students will also be in a position to apply their knowledge in developing the new methods for the determination and validate the procedures
5	<b>DRUG REGULATORY AFFAIRS</b>	CO1: - Students will be able know the different competent regulatory authorities globally. CO2: - Students be able to know technical aspects pertaining to the marketing authorization application (MAA) CO3: - Students be able to Know regulatory guidelines and directions framed by the regulatory authorities will be helpful to place the drug products in market for marketing approvals
6	<b>DRUG DISCOVERY AND DESIGN</b>	CO1: - The students will be able to know to get a broad idea on the drug discovery mechanisms. CO1: - The students will be able to know broad idea on the drug discovery mechanisms, its related terms and concepts of designing of drugs

7	PHARMACEUTICAL FOOD ANALYSIS	<p><b>CO1:</b> student will be able to understand various analytical techniques in the determination of</p> <ul style="list-style-type: none"> <li>☑ Food constituents</li> <li>☑ Food additives</li> <li>☑ Finished food products regulations and legislations</li> </ul> <p><b>CO2:</b> - student will be able to understand various analytical techniques in the</p> <ul style="list-style-type: none"> <li>☑ Pesticides in food</li> <li>☑ Pharmaceuticals (API &amp; Dosage forms)</li> <li>☑ And also student shall have the knowledge on food regulations and legislations</li> </ul>
8	SPECTRAL ANALYSIS	<p><b>CO1:</b> the students will be able To know spectral aspects of X-Ray, IR, SEM, ORD etc which help them in further projects works and also industrial opportunities</p>
9	RESEARCH METHODOLOGY AND IPR	<p><b>CO1:</b> - students will be able to Understand research problem formulation. Analyze research related information, Follow research ethics</p> <p><b>CO2:</b> - students will be able to Understand that when IPR would take such important place in growth of individuals &amp; nation, it is needless to emphasis the need of information about Intellectual Property Right to</p>

		<p>be promoted among students in general &amp; engineering in</p> <p>CO3:- students will be able to Understand that IPR protection provides an incentive to inventors for further research work and investment in R &amp; D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.</p>
<b>10</b>	<b>ADVANCED ORGANIC CHEMISTRY – I LAB (</b>	The student would be able to design of new chemical entities (NCE) for the treatment of different diseases in new drug discovery Program.
<b>11</b>	<b>ADVANCED MEDICINAL CHEMISTRY – I LAB</b>	The student would be able to which is useful to involve in new drug discovery Program by the utilization of natural leads and also with the help of structure-based drug design.
<b>12</b>	<b>ADVANCED ORGANIC CHEMISTRY-II</b>	<p>CO1: The student would be in a position to have advanced knowledge of different synthetic reagents and reaction processes, synthetic routes by involving green chemistry principles.</p> <p>CO2: - The student would be able to know techniques to utilize the chemical library of combinatorial chemistry</p>
<b>13</b>	<b>ADVANCED MEDICINAL CHEMISTRY – II</b>	CO1: - The student would be in a position to involve in the development of different

		enzyme inhibitors, prodrugs and also equipped with different biotechnological techniques of recombinant DNA products.
<b>14</b>	<b>PHARMACEUTICAL PROCESS CHEMISTRY</b>	CO1: - students will be able to understand the strategies of scale up process of apis and intermediates CO2: - students will be able to know various unit operations and various reactions in process chemistry.
<b>15</b>	<b>QUALITY CONTROL AND QUALITY ASSURANCE</b>	CO1: - student should be able to Understand the cGMP aspects in a pharmaceutical industry CO2: - student should be able to appreciate the importance of documentation CO3: - student should be able to understand the responsibilities of QA & QC departments.
<b>16</b>	<b>CLINICAL RESEARCH AND PHARMACOVIGILANCE</b>	CO1: - student shall be able to explain the regulatory requirements for conducting clinical trial Demonstrate the types of clinical trial designs CO2: student shall be able to Execute safety monitoring, reporting and close-out activities. Explain the principles of Pharmacovigilance Detect new adverse drug reactions and their assessment Perform the adverse drug reaction reporting systems and communication in pharmacovigilance
<b>17</b>	<b>SCREENING METHODS IN PHARMACOLOGY</b>	CO1: - student will be able to know how to handle animals

		and know about various techniques for screening of drugs for different pharmacological activities, guidelines and regulations for screening new drug molecules on animals.
<b>18</b>	<b>ADVANCED INSTRUMENTAL ANALYSIS</b>	C01: - By the completion of topics, the students will come out with the thorough knowledge of various spectral aspects of X-Ray, IR, SEM, ORD etc
<b>19</b>	<b>HERBAL DRUG TECHNOLOGY</b>	C01: - student will be able to the understand the organization and research of natural products in herbal drugs industries
<b>20</b>	<b>ADVANCED ORGANIC CHEMISTRY – II LAB</b>	C01: The student would be in a position to have advanced knowledge of different synthetic reagents and reaction processes, synthetic routes by involving green chemistry principles.
<b>21</b>	<b>ADVANCED MEDICINAL CHEMISTRY – II LAB</b>	C01: - The student would be in a position to involve in the development of different enzyme inhibitors, prodrugs and also equipped with different biotechnological techniques of recombinant DNA products.
<b>22</b>	<b>BIOSTATISTICS</b>	C01: - The student will be known the Biostatistics arrangement, presentation and

		formation of tables and charts. They also know the correlation and regression & application of different methods, analysis of data
23	<b>PHARMACEUTICAL PRODUCTION AND PACKAGING TECHNOLOGY</b>	CO1: - student will be able to know about Industrial area design and packaging of different formulations and its stability conditions.
24	<b>SCALE UP AND TECHNOLOGY TRANSFER</b>	Manage the scale up process in pharmaceutical industry. <input type="checkbox"/> Assist in technology transfer. <input type="checkbox"/> To establish safety guidelines, which prevent industrial hazards
25	<b>ENGLISH FOR RESEARCH PAPER WRITING</b>	CO1: - Students will be able to: Understand that how to improve your writing skills and level of readability CO2: - Students will be able to Learn about what to write in each section CO3: - Students will be able to Understand the skills needed when writing a Title Ensure the good quality of paper at very first-time submission
26	<b>PEDAGOGY STUDIES</b>	CO1: - Students will be able to understand: What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries? CO2: - Students will be able to What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
27	<b>STRESS MANAGEMENT BY YOGA</b>	CO1: - Students will be able to Develop healthy mind in a healthy body thus improving social health also Improve efficiency

28	<b>PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS</b>	CO1: - Students will be able to Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life CO2: - Students will be able to the person who has studied Geeta will lead the nation and mankind to peace and prosperity
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