Program	Master of Pharmacy (M.Pharm)	**Semester - 2**
Type of Course	-	
Prerequisite		
Course Objective	-	
Effective From A.Y.	2023-24	

Teaching Scheme (Contact Hours)				Examination Scheme				
				Theory Marks		Practical Marks		
Lecture	**Tutorial**	**Lab**	**Credit**	**External Marks (T)**	**Internal Marks (T)**	**External Marks (P)**	**Internal Marks (P)**	**Total Marks**
-	-	12	6	-	-	100	50	150

SEE *- Semester End Examination,* ***CIA*** *- Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)*

Course Content

T - Teaching Hours | **W** - Weightage

Sr.	Topics	T	W
1	**EXPERIMENTS** 1. To record the DRC of agonist using suitable isolated tissues preparation. 2. To study the effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation. 3. To determine to the strength of unknown sample by matching bioassay by using suitable tissue preparation. 4. To determine to the strength of unknown sample by interpolation bioassay by using suitable tissue preparation 5. To determine to the strength of unknown sample by bracketing bioassay by using suitable tissue preparation 6. To determine to the strength of unknown sample by multiple point bioassay by using suitable tissue preparation. 7. Estimation of PA2 values of various antagonists using suitable isolated tissue preparations. 8. To study the effects of various drugs on isolated heart preparations 9. Recording of rat BP, heart rate and ECG. 10. Recording of rat ECG. 11. Drug absorption studies by averted rat ileum preparation. 12. Acute oral toxicity studies as per OECD guidelines. 13. Acute dermal toxicity studies as per OECD guidelines. 14. Repeated dose toxicity studies- Serum biochemical, haematological, urine analysis, functional observation tests and histological studies. 15. Drug mutagenicity study using mice bone-marrow chromosomal aberration test. 16. Protocol design for clinical trial.(3 Nos.) 17. Design of ADR monitoring protocol. 18. In-silico docking studies. (2 Nos.) 19. In-silico pharmacophore-based screening. 20. In-silico QSAR studies. 21. ADR reporting.		
	Total		

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy

Level	Application	Analyze	Evaluate
Weightage	35	35	30

NOTE : This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes

At the end of this course, students will be able to:	
CO1	Ability to learn practical skill aspects regarding preclinical research as per OECD guidelines
CO2	Understanding pharmacological & non-pharmacological methods for drug screening.

Reference Books

1.	**Hand book of Experimental Pharmacology (TextBook)** By S.K.Kulakarni
2.	**Text book of in-vitro practical Pharmacology** By Ian Kitchen
3.	**Bioassay Techniques for Drug Development** By Atta-Ur-Rahman, Iqbal Choudhary and William Thomsen
4.	**Applied biopharmaceutics and Pharmacokinetics** By Leon Shargel and Andrew B.C.Yu
5.	**Handbook of Essential Pharmacokinetics, Pharmacodynamics and Drug Metabolism for Industrial Scientists.**
6.	**Fundamentals of Experimental Pharmacology** By M.N. Gosh | B S Shah Prakashan | 9, Pub. Year 2017