



Program	Master of Pharmacy (M.Pharm)	Semester - 1
Type of Course	-	
Prerequisite		
Course Objective	-	
Effective From A.Y.	2023-24	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				External Marks (T)	Internal Marks (T)	External Marks (P)	Internal Marks (P)	
4	-	-	4	75	25	-	-	100

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	Unit 1 Common laboratory animals: Description, handling and applications of different species and strains of animals. Transgenic animals: Production, maintenance and applications Anesthesia and euthanasia of experimental animals. Maintenance and breeding of laboratory animals. CPCSEA guidelines to conduct experiments on animals good laboratory practice. Bioassay- Principle, scope and limitations and methods	12	20
2	Unit 2 Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models. General principles of preclinical screening. CNS Pharmacology: behavioral and muscle coordination, CNS stimulants and depressants, anxiolytics, anti-psychotics, antiepileptics and nootropics. Drugs for neurodegenerative diseases like Parkinsonism, Alzheimers and multiple sclerosis. Drugs acting on Autonomic Nervous System.	12	20
3	Unit 3 Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models. Respiratory Pharmacology: anti-asthmatics, drugs for COPD and anti allergics. Reproductive Pharmacology: Aphrodisiacs and antifertility agents Analgesics, antiinflammatory and antipyretic agents. Gastrointestinal drugs: antiulcer, anti - emetic, anti- diarrheal and laxatives.	12	20
4	Unit 4 Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models. Cardiovascular Pharmacology: antihypertensives, antiarrhythmics, antianginal, antiatherosclerotic agents and diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anticancer agents. Hepatoprotective screening methods.	12	20
5	Unit 5	12	20



Course Content

T - Teaching Hours | W - Weightage

Sr.	Topics	T	W
	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models. Immunomodulators, Immunosuppressants and immunostimulants General principles of immunoassay: theoretical basis and optimization of immunoassay, heterogeneous and homogenous immunoassay systems. Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin Limitations of animal experimentation and alternate animal experiments. Extrapolation of in vitro data to preclinical and preclinical to humans		
		Total	60 100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy

Level	Remembrance	Understanding
Weightage	50	50

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:

C01	Ability to appraise the regulation and ethical requirement for use of animals and handling of experimental animals.
C02	Ability to describe the various screening methods used for immunomodulators, alternative to animals experiments and correlate preclinical data to humans.

Reference Books

1.	Essentials of Medical Pharmacology (TextBook) By K.D.Tripathi Jaypee Brothers Medical Publishers
2.	PRINCIPLES OF PHARMACOLOGY (TextBook) By HL SHARMA, KK SHARMA PARAS PUBLICATION 3rd, Pub. Year 2008
3.	Drug Discovery and Evaluation Pharmacological Assay By Hans Gerhard Vogel Springer 3, Pub. Year 2008
4.	Fundamentals of Experimental Pharmacology (TextBook) By M.N. Gosh B S Shah Prakashan 9, Pub. Year 2017
5.	Principles and Practice of Immunoassay By Chirstopher P Price, David J Newman Stockton Press 1, Pub. Year 1991
6.	Practicals in Pharmacology (TextBook) By Dr R K Goyal B S Shah Prakashan 9, Pub. Year 2017