



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)	
-	-	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	To carry out assay of Paracetamol by UV spectrophotometric method as per the IP 2022	12	5
2	To study the effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation	12	5
3	To determine to the strength of unknown sample by matching bioassay by using suitable tissue preparation	5	2
4	To determine to the strength of unknown sample by interpolation bioassay by using suitable tissue preparation	5	3
5	To determine to the strength of unknown sample by bracketing bioassay by using suitable tissue preparation	10	4
6	To determine to the strength of unknown sample by multiple point bioassay by using suitable tissue preparation	6	2
7	Estimation of PA2 values of various antagonists using suitable isolated tissue preparations.	12	8
8	To study the effects of various drugs on isolated heart preparations	12	8
9	Recording of rat BP, heart rate and ECG.	12	5
10	Recording of rat ECG	12	5
11	Drug absorption studies by averted rat ileum preparation	8	4
12	Acute oral toxicity studies as per OECD guidelines	6	4
13	Acute dermal toxicity studies as per OECD guidelines	10	8



Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
14	Repeated dose toxicity studies- Serum biochemical, haematological, urine analysis, functional observation tests and histological studies	6	5
15	Drug mutagenicity study using mice bone-marrow chromosomal aberration test	8	2
16	Protocol design for clinical trial	10	5
17	Design of ADR monitoring protocol	11	8
18	In-silico docking studies	6	4
19	In-silico pharmacophore-based screening	5	4
20	In-silico QSAR studies	6	5
21	ADR reporting	6	4
Total		180	100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy

Level	Analyze	Evaluate
Weightage	40	60

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	Understanding the development of analytical methods for estimation of drugs in single and combined dosage form
CO2	Understanding and learning practical skill aspects regarding preclinical research and biotechnology techniques



Reference Books

1.	Practicals in Pharmacology (TextBook) By Dr R K Goyal B S Shah Prakashan 9, Pub. Year 2017
2.	Handbook of experiments in pre-clinical pharmacology By Kasture S.B Career publications 1ST, Pub. Year 2006
3.	Practical in Pharmacology (TextBook) By Goyal R.K, Patel N.M, Bhatt R.V, Mehta A. A B S shah Prakashan 9TH, Pub. Year 2010
4.	Drug Discovery and Evaluation Pharmacological Assay By Hans Gerhard Vogel Springer 3, Pub. Year 2008
5.	Laboratory handbook in Instrumental analysis (TextBook) By Dr. Kalpana Patel, Dr.Pruvi shah, Hitesh Raval Nirav Prakashan 1ST, Pub. Year 2013
6.	Vogel's Textbook of Quantitative Chemical Analysis By J MENDHAM,RC DENNEY,J D BARES,M THOMAS,B SIVASANKAR PEARSON 6 TH, Pub. Year 1989
7.	Practical Pharmaceutical Chemistry (TextBook) By A. H. Beckett and J. B. Stenlake 2005 4



List of Practical

1.	To carry out assay of Paracetamol by UV spectrophotometric method as per the IP 2022
2.	To determine %w/w of Paracetamol in given tablet by colorimetric method
3.	To determine %w/w of Ofloxacin in given tablet by Colorimetric method
4.	To perform assay of Indomethacin using UV spectroscopic method
5.	Determination of Chloramphenicol from its ointment by UV-Visible Spectroscopy
6.	To estimate the amount of quinine sulphate present in given sample by photofluorimetry
7.	To determine amount of Caffeine and Sodium Benzoate in mixture by UV spectroscopy using simultaneous equation method.
8.	To determine amount of Caffeine and Sodium Benzoate in mixture by UV spectroscopy using absorbance ratio method.
9.	To determine amount of Ornidazole and Ofloxacin by Simultaneous equation method.
10.	To determine amount of Ornidazole and Ofloxacin by absorption ratio method.
11.	To determine amount of Ornidazole and Ofloxacin by 1st order derivative method.
12.	To determine amount of Paracetamol and Ibuprofen by absorption ratio method in Combiflam.
13.	To determine amount of Paracetamol and Ibuprofen by simultaneous equation method in Combiflam.
14.	To determine amount of Paracetamol and Ibuprofen by 1st order derivative method in Combiflam.
15.	To estimate Paracetamol by HPLC method
16.	To study the methods for blood collection & dosing of drugs by various routes in laboratory animals
17.	To study the methods for euthanasia and anaesthesia in various laboratory animals.
18.	To study the effects of drug acting on CNS using functional observational battery test (modified Irwin test)
19.	To study the anxiolytic effect of Diazepam using elevated plus maze in mice.
20.	To study the effects of drugs on spontaneous motor activity and to evaluate nature as CNS stimulant or CNS depressants.
21.	To study the effect of various tranquillizers and sedatives on motor co-ordination by Rota rod test in mice.
22.	To evaluate antiepileptic activity of drug using Pentylene tetrazole (PTZ) (chemical) induced convulsion.
23.	To study the effect of various drugs (diuretics) on the output of urine in rats.
24.	To evaluate analgesic potency of drug by thermal method
25.	To evaluate the anti-inflammatory property of indomethacin against carrageenan induced acute paw edema in rat.
26.	To evaluate local anaesthetic agents by Intradermal method in guinea pig.
27.	To evaluate the mydriatic and miotic activity of various drugs on rabbit eye.
28.	To evaluate antisecretory and ulcer protective effect of cimetidine in pylorus ligated rats.
29.	Isolation of de-oxyribonucleic acid (DNA) from goat spleen.
30.	To isolate RNA from yeast cells.
31.	To study the effect of microsomal enzyme inducers and inhibitors on pentobarbitone sodium induced sleeping time in mice.
32.	To assess insulin resistance using Oral Glucose Tolerance test (OGTT) in rats.
33.	To assess antidepressant activity using the forced swim test on mice.