18BP095 PHARMACOLOGICAL SCREENING METHODS

Hours Per Week :

L	T	P	CP	CL
3	1	-	-	4

Total Hours :

L	T	P	WA/RA	SSH/HSH	CS	SA	S	BS
45	1	-						

SCOPE:

This subject is designed to impart the basic knowledge of preclinical studies in experimental animals including design, conduct and interpretations of results.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs	PSOs
1	Appreciate the applications of various commonly used laboratory animals.	1,4	1
2	Appreciate and demonstrate the various screening methods used in preclinical research.	1,4	1
3	Appreciate and demonstrate the importance of biostatics and research methodology.	1,4	1
4	Design and execute a research hypothesis independently.	1,4	1

UNIT- I   8
                                                                                               HOURS

LABORATORY ANIMALS: Study of CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals, Common lab animals: Description and applications of different species and strains of animals. Popular transgenic and mutant animals. Techniques for collection of blood and common routes of drug administration in laboratory animals, Techniques of blood collection and euthanasia.

UNIT – II   **10 HOURS**

PRECLINICAL SCREENING MODELS:

INTRODUCTION: Dose selection, calculation and conversions, preparation of drug solution/ suspensions, grouping of animals and importance of sham negative and positive control groups. Rationale for selection of animal species and sex for the study.

STUDY OF SCREENING ANIMAL MODELS: Diuretics, nootropics, anti-Parkinson's, anti asthmatics, **PRECLINICAL SCREENING MODELS:** for CNS activity- analgesic, antipyretic, anti-inflammatory, general anaesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, anti-parkinsonism, Alzheimer's disease.

UNIT – III   **7 HOURS**

PRECLINICAL SCREENING MODELS: for ANS activity, sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, skeletal muscle relaxants, drugs acting on eye, local anaethetics.

UNIT – IV   **10 HOURS**

PRECLINICAL SCREENING MODELS: for CVS activity- anti-hypertensives, diuretics, anti-arrhythmic, antidyslepidemic, anti aggregatory, coagulants, and anticoagulants. Preclinical screening models for other important drugs like antiulcer, antidiabetic, anticancer and anti-asthmatics.

UNIT – V   **10 HOURS**

Research methodology and Bio-statistics: Selection of research topic, review of literature, research hypothesis and study design Pre-clinical data analysis and interpretation using Students't' test And One-way ANOVA. Graphical representation of data

RECOMMENDED BOOKS (LATEST EDITION):

1.   Fundamentals of experimental Pharmacology-by M.N.Ghosh

2.   Hand book of Experimental Pharmacology-S.K.Kulakarni

3.   CPCSEA guidelines for laboratory animal facility.

4.   Drug discovery and Evaluation by Vogel H.G.

5.   Drug Screening Methods by Suresh Kumar Gupta and S. K.Gupta

6.   Introduction to biostatistics and research methods by PSS Sundar Rae and J Richard