

**DEPARTMENT OF PHARMACY
M.I.T., MUZAFFARPUR**



**AFFILIATED TO
ARYA BHATT KNOWLEDGE UNIVERSITY,
MITHAPUR, PATNA**

**NAME OF FACULTY: DR. S. KUMAR
ASSOCIATE PROFESSOR,
DEPARTMENT OF PHARMACY,
M.I.T. MUZAFFARPUR**

**Contact Details:
Email ID:**

**Name of Course: Pharmacology –I
Course code (T):
Course code (P):
Semester : V
Academic year : 2018-2019**

PHARMACOLOGY-I

B. PHARM – FIFTH SEMESTER

1. Course Syllabus

Module -1 .General Pharmacology: Introduction to Pharmacology, Sources of drugs, Dosage forms and routes of administration, mechanism of action, Combined effect of drugs, Factors modifying drug action, tolerance and dependence, Pharmacokinetics, Absorption, Distribution, Metabolism and Excretion of drugs, Principles of Basic and Clinical pharmacokinetics, Adverse Drug Reactions and treatment of poisoning, ADME drug interactions, Bioassay of Drugs and Biological Standardization, Discovery and development of new drugs.

Module -2.Pharmacology of Peripheral Nervous System:

- a. Neurohumoral transmission (autonomic and Somatic)
- b. Parasympathomimetics, Parasympatholytics, Sympathomimetics, Adrenergic Receptor and neuron blocking agents, Ganglionic, stimulants and blocking agents.
- c. Neuromuscular blocking Agents.
- d. Local anaesthetic Agents.

Module-3 .Pharmacology of Central Nervous System:

- a. Neurohumoral transmission in the C.N.S.
- b. General Anaesthetics.
- c. Alcohols and disulfiram.
- d. Sedatives, hypnotics, Anti-anxiety agents and centrally acting muscle relaxants.
- e. Psychopharmacological agents (anti-psychotics) antidepressants anti maniacs and hallucinogens.
- f. Anti-epileptics drugs.
- g. Anti-Parkinsonian Drugs.
- h. Analgesics, Antipyretics, Anti-inflammatory and Anti-gout drugs.
- i. Narcotic analgesics and antagonists.

j. C.N .S. stimulants.

k. Drug Addiction and Drug Abuse.

2. Recommended Textbooks/ Reference books:

1. Essentials of Medical Pharmacology by K.D.Tripathy
2. Pharmacology and pharmacotherapeutics by Satoshkar and Bhandarkar
3. Pharmacology by Prasun K Das, S.K.Bhattacharya and P.Sen.
4. Text book of Pharmacology by S.D. Sethi
5. The Pharmacological basis of Therapeutics by Goodman and Gilman
6. Pharmacology by Rang, Dale and Ritter.
7. Basic and Clinical Pharmacology by B.G.Katzung.

SAMPLE TIME TABLE

MUZAFFARPUR INSTITUTE OF TECHNOLOGY

ODD SEM (JULY- DEC 2018) TIME TABLE FOR 3rd , 5th & 7th SEMESTER, B.PHARM, WITH EFFECT FROM 16/07/20

DAY	SEMESTER	9 AM TO 10	10 -11 AM	11- 12 AM	12 -1 PM	2- 3 PM	3 PM	
MON	THIRD SEM	APHE II SK	PHARM ANAL II GT	PHARMACEUTICS III AB	PHARMACOGNOSY II NRB		CLAS	
	FIFTH SEM	PHARMACEUTICS V RKC	PHARMACEUTICS V LAB RKC					CLAS
	SEVENTH SEM	PHARMA. BIOTECH SNS	PHARM CHEM VII RP	PHARMA. INDUST. MANAG.	PHARMACOLOGY III RP		CLAS	
TUES	THIRD SEM	PHARMACEUTICS III AB	PHARM CHEM IV SW	PHARMACEUTICS III AB(T)	PHARM ANAL II GT(T)		PHARMA LA	
	FIFTH SEM	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMA CEUTICS V RKC	PHARMACOLOGY I SK		PHARM C S	
	SEVENTH SEM	PHARMACEUTICS VIII RKC	PHARM CHEM VII RP	PHARMACOLOGY III RP	PHARMACEUTICS VIII RKC(T)		PHARMA LA	
WED	THIRD SEM		PHARMACOGNOSY II NRB(T)	PHARMACOGONOSY II NRB	PHAR ANAL II GT		PHARMA II LA	
	FIFTH SEM	PHARMACOLOGY I SK	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMACOLOGY I SK(T)		PHARMA LA	
	SEVENTH SEM	PHARM CHEM VII RP(T)	PHARMACEUTICS VIII RKC	PHARM CHEM VII RP	ELECTIVE OPT		PHARM C	
THURS	THIRD SEM	APHE II SK(T)	PHARM CHEM IV SW	APHE II SK	PHARM CHEM IV SW(T)		PHARM A C	
	FIFTH SEM	PHARM CHEM V SNS	PHARMACEUTICS VI AB	PHARMACOGONOSY IV SW			PHARMA IV LA	

	SEVENTH SEM	PHARMACEUTICS VIII RKC	PHARMA. BIOTECH SNS(T)	PHARMACOLOGY III RP	ELECTIVE OPT	ELECTIVE
FRI	THIRD SEM	APHE II SK	PHARMACUTICAL CHEMISTRY IV LAB SW			APHE I
	FIFTH SEM	PHARMACOGONOSY IV SW	PHARMACEUTICS V RKC	PHARMACOGONOSY IV SW(T)	PHARMACEUTICS V RKC(T)	PHARMA LAB C
	SEVENTH SEM		ELECTIVE OPT (T)	ELECTIVE OPT	PHARMA. BIOTECH.SNS	PHARMA III RKC
SAT	THIRD SEM	PHARMACOGONOSY II NRB	PHARM CHEM IV SW	PHAR ANAL II GT	PHARMACEUTICS III AB	
	FIFTH SEM	PHARM CHEM V SNS(T)	PHARMACOLOGY I SK	PHARMACEUTICS VI AB	PHARMACOGONOSY IV SW	
	SEVENTH SEM	PHARMACOLOGY III RP(T)	PHARMA. INDUST. MANAG.	PHARMA. BIOTECH SNS		

2. Program Objectives

The graduates of the programme will possess:

1. The knowledge of core concepts of Pharmacology.
2. The knowledge of Principles of Drug Action
3. Mechanism of Action and side effects drugs

3. Course Outcomes (COs)

After completion of the course, the students are will be able to:

1. Explain the core concepts of Pharmacology.
2. Elucidate principles of Drug Action
3. Describe Pharmacology of drugs acting on CNS, ANS, PNS, Local anaesthetics & GA
4. Give details Mechanism of Action and side effects drugs above mentioned

4.Mapping of COs with Pos

PO	CO1	CO2	CO3	CO4
1				
2				
3				
4				
5				

6				
7				
8				
9				
10				
11				
12				

5. Assessment Methods for Cos

5.1. Theory

S.No	Assessment Tools	Marks	Outcomes
1	Sessional Examination	20	CO1 CO2 CO3 CO4
2	Assignment	02	CO1 CO2 CO3 CO4

3	Presentation	02	CO1 CO2 CO3 CO4
4	Quizzes	01	CO1 CO2 CO3 CO4
5	Attendance	05	NA
6	University Examination	70	NA

5.2. Practical

S.No	Assessment Tools	Marks	Outcomes
1	Attendance	05	CO1 CO2 CO3 CO4
2	Experiment valuation	10	CO1 CO2 CO3 CO4
3	Internal Viva- voce	05	CO1 CO2 CO3 CO4
4	University Practical Exam	30	CO1 CO2 CO3 CO4

6. Delivery Methodology

Outcomes	Methods	Supporting Tools
CO 1	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases,	Board, Laptop, Projector, You Tube, Whatsapp, Google,

	Group discussions, , Web based learning	
CO2	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,
CO3	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,
CO4	Chalk-Talk, Interactive classroom, ICT usage, Case study discussion about diseases, Group discussions, , Web based learning	Board, Laptop, Projector, You Tube, Whatsapp, Google,

7. Teaching plan

7.1. Theory

Lecture No.	Contents
1	Introduction of core concepts of Pharmacology: Pharmacology: Pharmacy: Drug: Therapeutics: Importance and or relevance of studying Pharmacology: History of Pharmacology.
2	Introduction of core concepts of Pharmacology; Terminology; Pharmacodynamics; Pharmacokinetics; Pharmacotherapeutics; Clinical pharmacology; Chemotherapy; Pharmacy; Toxicology
3	Drug; Nature: Sources; Nomenclature; Drug Compendia; Drugs Dispensing; Rules for Drug Administration
4	Introduction to pharmacology, Some basic terms, Sources of drugs
5	Routes of drug administration (oral)
6	Routes of drug administration (parenteral)
7	Routes of drug administration (miscellaneous) Class test 1
8	P'kinetics – Drug Absorption processes (passive transport)Drug Absorption processes (active transport)Drug Absorption processes (miscellaneous)
9	Factors affecting drug absorption (formulation related) Factors affecting drug absorption (patients related)
10	Drug distribution – plasma protein binding and Vd Factors affecting drug distribution
11	Drug metabolism – Organs, enzymes involved in metabolism, Phase I and II reactions, Factors affecting drug metabolism
12	Drug excretion – Organs involved in excretion & Mechanism of renal excretion
13	P'dynamics – Principles of Drug Action: Receptor
14	Principles of Drug Action: Receptor

15	Local anaesthetics – Mechanism, Classification, Uses and Adverse effects
16	General anaesthetics – stages of anaesthesia
17	General anaesthetics – uses, pre and post anaesthetic medication Class Test -2
18	Sedative- hypnotics – Classifications and mechanism of action
19	Sedative- hypnotics – Uses and Adverse effects
20	Anxiolytic drugs – Mechanism and Classification
21	Anxiolytic drugs –Uses and Adverse effects
22	Antiepileptic drugs- Mechanism, Classification
23	Antiepileptic drugs- Uses and Adverse effects
24	Antipsychotic drugs- Mechanism, Classification
25	Antipsychotic drugs - Uses and Adverse effects
26	Antidepressant drugs- Mechanism and Classification
27	Antidepressant drugs- Adverse effects & Uses
28	CNS stimulants– Mechanism and Classification
29	CNS stimulants– Uses and Adverse effects Class Test- 3
30	Narcotic analgesics classification and mechanism of action
31	Narcotic analgesics – mechanism, classification
32	Narcotic analgesics – uses and adverse effects
33	NSAIDs classification and mechanism of action
34	NSAIDs uses and adverse effects
35	Neurohumoral transmission
36	Sympathomimetics and Actions of adrenaline
37	Sympatholytics drugs – classes and uses
38	Uses and adverse effects of Sympathomimetics
39	Sympatholytics drugs – uses and adverse effects
40	Parasympathomimetics and Actions of Ach Uses and adverse effects of cholinergic drugs
41	Anticholinergic agents– classes and uses,
42	Anticholinergic agents– uses and adverse effects

7.2. Practical

Exp. No	Experiment
1	To study different laboratory animals and their applications in experimental pharmacology
2	To study different laboratory equipments and their applications in experimental pharmacology
2	To study handling technique and different routes of drug administration in rats and mice
3	To study basic pharmacological experimental instruments.
4	To prepare and submit physiological salt solution.
5	To study the effect of acetylcholine on rectus abdominus muscle of frog.
6	To study rota-rod test for the assessment of motor co-ordination and balance in mice.
7	To study the effects of mydriatic and miotic drugs on rabbit eye.
8	To study the open field test for the assessment of CNS stimulant / depressant activity in rats.
9	To study hot plate test for the assessment of pain-related behavior in rats