Academic:

1. Degree Offered –UG, PG, PhD
2. Academic Regulations:
   UG , PG, PhD (VCI, ICAR, IV, V Dean's and Corrigendum) – PDF Copies

3. Admissions: UG, PG, PhD

List of Admitted Students – First Year to Final Year (Veterinary Year wise / Fishery and Dairy Semester wise)

Sr. No.	Name of Student	Enrl. No.	Email Address	Name of Advisor

4. Course offered :: UG, PG , PhD - Semester / Year wise

- List of UG Courses (B.V.Sc & AH) As per latest MSVE Guidelines) , B.Tech. (D.T.) and B.F.Sc as per ICAR – V Deans Committee – 2016.

Sr No	Course No.	Title	Credit	Course offered in the Year
1	VPT3	Veterinary Pharmacology and Toxicology	4+ 1 = 5	3 year

- List of PG Courses (MVSc)

Sr No	Course No.	Title	Credit	Semester
1.	VPT 501	Concepts of Pharmacology, Drug Design and Development	2+0	I
2.	VPT 502	Autonomic and Autacoid Pharmacology	2 + 1	I
3.	VPT-503	CNS Pharmacology	2+1	I
4.	VPT-504	Digestive and Respiratory Pharmacology	2+1	I
5.	VPT-505	Cardiovascular and Urinary System Pharmacology	2+0	II
6.	VPT-506	Endocrine and Reproductive Pharmacology	2+1	II
7.	VPT-507	Chemotherapy	2+1	II
8.	VPT-508	Toxicology of Xenobiotics	2+1	II
9.	VPT-509	Toxinology	2+1	III
10.	VPT 510	Pharmacological Techniques	0+2	III
11.	VPT 511	Techniques in Toxicology	0+2	III
12.	VPT 512	Ethnopharmacology	1+1	III
13.	VPT 513	Fundamentals of Pharmacokinetics	1+1	III

5. Lecture Schedule – UG, PG , PhD - Theory / Practical Schedule – Approved by BoS – Subject wise

Lecture schedule UG

MAHARASTRA ANIMAL & FISHERY SCIENCES UNIVERSITY, NAGPUR.

NAME OF DISCIPLINE	VETERINARY PHARMACOLOGY AND TOXICOLOGY
PROFESIONAL YEAR	III
CREDIT HOURS	4 + 1 = 5
BOS APPROVAL RESOLUTION NO.	

Sr. No.	Unit No.	Lecture No.	Topic to be covered
1.	Unit 1	1	Introduction to Veterinary Pharmacology, Historical development of Pharmacology.
2.	Unit 1	2	Branches of Pharmacology and scope of Pharmacology.
3.	Unit 5	3	Introduction to Chemotherapy, Classification
4.	Unit 5	4	General principles in antibacterial chemotherapy (definition of antibiotic, MBC, MIC and classification of antibiotic with examples etc.)
5.	Unit 1	5	Pharmacological terms and definitions.
6.	Unit 1	6	Sources and nature of drugs
7.	Unit 5	7	Antibacterial resistance
8.	Unit 5	8	Rational use of Chemotherapeutic agents.
9.	Unit 1	9	Drug Discovery & Drug development
10.	Unit 1	10	Bio Prospecting of Drugs
11.	Unit 5	11	Sulphonamides, mechanism of action, spectrum, clinical uses, toxicity, dose and route of administration and their combination with diaminopyrimidines
12.	Unit 5	12	Other antimicrobial compounds like Sulfones, Nitrofurans, Nalidixic acid.
13.	Unit 1	13	Principles of drug activity: Pharmacokinetics – Routes of drug Administration.
14.	Unit 1	14	Absorption of Drugs.
15.	Unit 5	15	Quinolones and Fluoroquinolones (structure, mechanism, spectrum, clinical uses, toxicity, dose and route of administration.
16.	Unit 5	16	Penicillin – Penicillin, synthetic penicillin, beta lactamase inhibitors.
17.	Unit 1	17	Distribution of Drug.
18.	Unit 1	18	Biotransformation of drugs & species variation in Biotransformation.
19.	Unit 5	19	Combination of Penicillin with other drugs.
20.	Unit 5	20	Cephalosporin and Cephamycins.
21.	Unit 1	21	Excretion of drugs.
22.	Unit 1	22	Pharmacodynamics and concept of drug and receptor, types of receptor.
23.	Unit 5	23	Aminoglycoside –I: Gentamicin, Streptomycin.
24.	Unit 5	24	Aminoglycoside –II: Neomycin, Kanamycin, Amikacin etc.
25.	Unit 1	25	Dose-response relationship.
26.	Unit 1	26	Terms related to drug activity and drug interaction.
27.	Unit 5	27	Tetracycline and tetracycline derivatives.
28.	Unit 5	28	Amphenicols (Chloramphenicol, thiamphenicol, florphenicol).
29.	Unit 1	29	Factors modifying the drug effect.
30.	Unit 1	30	Fundamentals of drug-screening. & Drug delivery systems.
31.	Unit 5	31	Macrolide antibiotics.
32.	Unit 5	32	Lincosamides.
33.	Unit 1	33	Adverse drug reactions.
34.	Unit 1	34	Introduction to biopharmaceutics gene therapy.

35.	Unit 5	35	Polypeptides (Polymixins, Bacitracin)
36.	Unit 5	36	Glycopeptide antibiotics.
37.	Unit 2	37	Introduction to Autonomic Nervous System
38.	Unit 2	38	Autonomic relationship, central integration
39.	Unit 5	39	Miscellaneous agents: Novobiocin, virginiamycin, tiamulin.
40.	Unit 5	40	Antitubercular drugs.
41.	Unit 2	41	Neurohumoral transmission.
42.	Unit 2	42	Adreno receptors agonists, their SAR.
30% course completion. FIRST INTERNAL ASSESSMENT EXAM.			
43.	Unit 5	43	Antifungal agents: Topical and systemic agents.
44.	Unit 5	44	Antifungal agent: antibiotics
45.	Unit 2	45	Adreno receptor antagonists & adrenergic neuron blockers.
46.	Unit 2	46	**Cholinergic receptors agonists**
47.	Unit 5	47	Anthelmintics: introduction, classification, ideal Anthelmintics.
48.	Unit 5	48	Anthelmintic Resistance.
49.	Unit 2	49	**Cholinergic receptors antagonists**
50.	Unit 2	50	Ganglionic stimulants and blockers.
51.	Unit 2	51	Autacoids I: Histamine and antihistamine agents.
52.	Unit 5	52	Mechanism of action of Anthelmintics, Antinematodal drugs.
53.	Unit 5	53	Anticestodal and antitrematodal drugs and broad-specrum Anthelmintic**s-I**
54.	Unit 2	54	Autacoids II: 5 – Hydroxytryptamine and its antagonists.
55.	Unit 2	55	**Anticestodal and antitrematodal drugs and broad-specrum Anthelmintics-II**
56.	Unit 5	56	Antiprotozoan drugs I – for Trypanosomiasis, Babesiosis and Anaplasmosis.
57.	Unit 2	57	Autacoids III: Prostaglandins, Angiotensin anf Bradykinin
58.	Unit 3	58	Drugs acting on central nervous system (CNS): Introduction and Classification.
59.	Unit 5	59	Antiprotozoan drugs II – Giardiasis, Trichomoniasis and Amoebiasis.
60.	Unit 5	60	Anticoccidial drugs- general principles, classification, and mechanism of action and dosage of Anticoccidial drugs.
61.	Unit 3	61	History of general anaesthetics and theories of anaesthesia.
62.	Unit 3	62	Pharmacology of neurotransmitters of CNS.
63.	Unit 5	63	Ectoparasiticides I
64.	Unit 5	64	**Ectoparasiticides II**
65.	Unit 3	65	Inhalant anaesthetics I: Ether, Halothane, and Nitrous Oxide.
66.	Unit 3	66	Inhalant anaesthetics II: Enflurane, Isoflurane, Methoxyflurane, Cyclopropane Sevoflurance & recent development.
67.	Unit 5	67	Antiviral drugs.
68.	Unit 5	68	Anticancer drugs.
69.	Unit 3	69	Intravenous Anaesthesia – Barbiturates its Classification and SAR.
70.	Unit 3	70	Barbiturates- Pharmacological Action and Uses.
71.	Unit 5	71	Antiseptics and disinfectants –I.
72.	Unit 5	72	Antiseptics and disinfectants –II.
73.	Unit 3	73	Dissociative anaesthetics – Ketamine, Phencyclidine etc.
74.	Unit 3	74	Hypnotics and sedatives.
75.	Unit 5	75	Growth promoters.
76.	Unit 5	76	Pharmacology of indigenous medicinal plants: Scientific name, common name, active principles, pharmacological actions and therapeutic uses of Ginger, Ocmium, Neem, Piper longum, Withania, Leptadenia, Tinospora, Embilica.

77.	Unit 3	77	Tranquilizers.
78.	Unit 3	78	Psychotropic drugs – classification and mechanism.

79.	Unit 5	79	Pharmacology of indigenous medicinal plants: Scientific name, common name, active principles, pharmacological actions and therapeutic uses of Eucalyptus, Glycerrhiza, Trichospermum, curcuma, Adhantoda, Butea, Aloes, Sena, Rheubarb, Catechu etc.
80.	Unit 6	80	General Toxicology: Definitions, History of toxicology.
81.	Unit 3	81	Anticonvulsants: Phentobarbitone sodium, Phenytoin sodium, Primidone, etc.
82.	Unit 3	82	Analgesics: Opiod analgesics, Morphine and derivatives.
83.	Unit6	83	Fundamentals and scope of Toxicology.
84.	Unit6	84	Sources and classification of toxicants.
85.	Unit 3	85	Non- narcotic analgesics, salicylates, Para-aminophenol derivatives Pyrazolone derivatives.
86.	Unit 3	86	Non-steroidal anti-inflammatory drugs (NSAID), COX-I and COX-II Inhibitor.
60% course completion. SECOND INTERNAL ASSESSMENT EXAM.			
87.	Unit 6	87	Factors modifying toxicity.
88.	Unit 6	88	General approaches of diagnosis of poisoning.
89.	Unit 3	89	Analeptics & CNS stimulants.
90.	Unit 3	90	Drugs acting on somatic nervous system: Local anaesthetics.
91.	Unit 6	91	General approaches for treatment of poisoning.
92.	Unit 6	92	Toxicity caused by lead.
93.	Unit 3	93	Central muscle relaxants.
94.	Unit 3	94	Peripheral muscle relaxants.
95.	Unit 6	95	Toxicity caused by Arsenic.
96.	Unit 6	96	Toxicity caused by Mercury.
97.	Unit 3	97	Euthanasia.
98.	Unit 4	98	Drugs acting on digestive system: emetics, antiemetic, purgatives andantidiarrhoeals.
99.	Unit 6	99	Toxicity caused by Copper & Molybdenum.
100.	Unit 6	100	Toxicity caused by Selenium and Selenium accumulating plants.
101.	Unit 4	101	Drugs acting on digestive system: Stomachic, antacids, antiulcer and Prokinetics.
102.	Unit 4	102	Drugs acting on digestive system: Carminatives, Antizymotics, Cholerectics &Cholagogues.
103.	Unit 6	103	Toxicity caused by Nitrate and Nitrites.
104.	Unit 6	104	Toxicity caused by Chlorate, common salt and urea.
105.	Unit 4	105	Rumen pharmacology, Metabolic diseases of ruminal & its treatment
106.	Unit 4	106	Drugs acting on Cardiovascular system: cardiac glycosides,
107.	Unit 6	107	Toxicity caused by Phosphorus, Iodine & Fluorine.
108.	Unit 6	108	Poisonous Plants: Cyanogenetic Plants, Oleander, and Cotton.
109.	Unit 4	109	Antiarrhythmic drugs- quinidine, procainamide, calcium channel blockers.
110.	Unit 4	110	Pharmacology of Vasodilators.
111.	Unit 6	111	Poisonous plants: oxalate producing plants.
112.	Unit 6	112	Plants causing Thiamine deficiency.
113.	Unit 4	113	Antihypertensive drugs
114.	Unit 4	114	Coagulants, anticoagulants (local and systemic) and Haematinics.
115.	Unit 6	115	Poisonous plants: Abrus, Ipomoea, Datura, Nux Vomica, Castor, etc..
116.	Unit 6	116	Plants causing photosensitization and lathyrism.
117.	Unit 4	117	Drugs acting on respiratory system: Expectorants, antitussives and respiratory stimulants.
118.	Unit 4	118	Bronchodilators and mucolytics.

119.	Unit 6	119	Toxicity caused by Agrochemicals I: Insecticides - Chlorinated hydrocarbons, Organophosphates.
120.	Unit 6	120	Toxicity caused by Agrochemicals II: Carbamates, Pyrethroids, newer insecticides.

121.	Unit 4	121	Drugs acting on urogenital system: Diuretics, their classification and mechanisms of action.
122.	Unit 4	122	Urinary alkalizers and acidifiers.
123.	Unit 6	123	Toxicity caused by Agrochemicals III: Herbicides.
124.	Unit 6	124	Toxicity caused by fungicides.
125.	Unit 4	125	Fluid therapy
126.	Unit 4	126	Ecbolics and tocolytics.
127.	Unit 6	127	Toxicity caused by rodenticides.
128.	Unit 6	128	Fungal toxins: Aflatoxins, Rubratoxin, Ochratoxin.
129.	Unit 4	129	Drugs acting on skin and mucous membranes: Emollients, demulcents and counter irritants.
90% course completion. THIRD INTERNAL ASSESSMENT EXAM.			
130.	Unit 4	130	Immuno modulators & Bioenhancers.
131.	Unit 6	131	Fungal toxins: Sporidesmin, Citrinin, F – 2 toxin, Trichothecenes, Ergot & Fescue.
132.	Unit 6	132	Bacterial toxins: Botulinum toxin and tetanus toxin.
133.	Unit 4	133	Pharmacotherapeutics of Pituitary Hormones – I
134.	Unit 4	134	Pharmacotherapeutics of Gonadal Hormones
135.	Unit 6	135	Venomous bites and stings: Snake, scorpion, spider.
136.	Unit 6	136	Venomous bites and stings: bees and wasp, toad and fishes (puffer fish, shellfish).
137.	Unit 4	137	Pharmacotherapeutics of adrenal Hormones
138.	Unit 4	138	Pharmacotherapeutics of Pancreatic Hormones – II
139.	Unit 6	139	Toxicity caused by food additives and preservatives.
140.	Unit 6	140	Drug & drug residual toxicology.
141.	Unit 4	141	Drug used for abuse in Veterinary field
142.	Unit 6	142	Environmental pollutants: Air and water pollutants, Methane pollution, acid rain, Green house effect-**I**
143.	Unit 6	143	**Environmental pollutants: Air and water pollutants, Methane pollution, acid rain, Green house effect-II**
144.	Unit 6	140	Concept of radiation hazards.

Modification as per suggestions from BOS

Lecture schedule PG

Course Title	**: Concepts of Pharmacology, Drug Design and Development**
Course Code	**: VPT 501**
Credit Hours	**: 2+0**

Sr. No	**Name of the topic**
1	Scope of pharmacology, nature and sources of drugs and other therapeutic agents
2	Concept of Pharmacology in Therapeutics
3	Scope of pharmacology, nature and sources of drugs and other therapeutic agents
4	Principles of biopharmaceutics and dosage forms of drugs
5	Principles of biopharmaceutics and dosage forms of drugs

6	Routes of Drug Administrations
7	Principles of Pharmacokinetics-Absorption, distribution, metabolism and excretion of drugs
8	Principles of Pharmacokinetics-Absorption, distribution, metabolism and excretion of drugs
9	Principles of Pharmacokinetics-Absorption, distribution, metabolism and excretion of drugs
10	Principles of Pharmacokinetics-Absorption, distribution, metabolism and excretion of drugs
11	Principles of Pharmacokinetics-Absorption, distribution, metabolism and excretion of drugs
12	Application of Pharmacokinetics
13	Principles of drug action, rational, empirical and various other therapeutics
14	Principles of drug action, rational, empirical and various other therapeutics
15	Pharmacodynamics-targets for drug actions (enzymes, ion channels, structural and transporter proteins)
16	Pharmacodynamics-targets for drug actions (enzymes, ion channels, structural and transporter proteins)
17	Pharmacodynamics-targets for drug actions (enzymes, ion channels, structural and transporter proteins)
18	Pharmacodynamics-targets for drug actions (enzymes, ion channels, structural and transporter proteins)
19	Receptor mediated drug action, types of drug receptors, second messengers of drug action and signal transduction
20	Receptor mediated drug action, types of drug receptors, second messengers of drug action and signal transduction
21	Receptor mediated drug action, types of drug receptors, second messengers of drug action and signal transduction
22	Receptor mediated drug action, types of drug receptors ,second messengers of drug action and signal transduction
23	Regulation and malfunctioning of diseases
24	Quantitation of drug-receptor interactions and elicited effects
25	Quantitation of drug-receptor interactions and elicited effects
26	Drug interactions and adverse drug reactions
27	Drug interactions and adverse drug reactions
28	Drugs design and development, Screening and drug assay
29	Drugs design and development, Screening and drug assay

30	Drugs design and development, Screening and drug assay
31	Clinical drug trials
32	Clinical drug trials
33	Drug safety, drug standards and regulations
34	Drug safety, drug standards and regulations
35	Gene therapy and novel drug delivery systems
36	Gene therapy and novel drug delivery systems

I. Course Title : Autonomic and Autacoid Pharmacology
II. Course Code : VPT 502
III. Credit Hours : 2 + 1

Sr. No	Name of the topic
1	Introduction to autonomic nervous system (ANS), Anatomical and physiological considerations of autonomic and somatic motor nervous system
2	Introduction to autonomic nervous system (ANS), Anatomical and physiological considerations of autonomic and somatic motor nervous system
3	Introduction to autonomic nervous system (ANS), Anatomical and physiological considerations of autonomic and somatic motor nervous system
4	Neurohumoral transmission
5	Neurohumoral transmission
6	Exceptions to generalization of ANS, Agents modulating peripheral nervous system, non-adrenergic-non cholinergic (NANC) transmission
7	Exceptions to generalization of ANS, Agents modulating peripheral nervous system, non-adrenergic-non cholinergic (NANC) transmission
8	Exceptions to generalization of ANS, Agents modulating peripheral nervous system, non-adrenergic-non cholinergic (NANC) transmission
9	Sympathetic nervous system, adrenergic agonists, antagonists and adrenergic neuron blockers
10	Sympathetic nervous system, adrenergic agonists, antagonists and adrenergic neuron blockers
11	Sympathetic nervous system, adrenergic agonists, antagonists and adrenergic neuron blockers
12	Sympathetic nervous system, adrenergic agonists, antagonists and adrenergic neuron blockers
13	Therapeutic uses of sympathetic drugs and blockers

14	Parasympathetic nervous system, cholinergic agonists, antagonists and cholinergic neuron blockers
15	Parasympathetic nervous system, cholinergic agonists, antagonists and cholinergic neuron blockers
16	Parasympathetic nervous system, cholinergic agonists, antagonists and cholinergic neuron blockers
17	Parasympathetic nervous system, cholinergic agonists, antagonists and cholinergic neuron blockers
18	Therapeutic uses of parasympathetic drugs and blockers
19	Ganglion stimulating and blocking drugs
20	Ganglion stimulating and blocking drugs
21	Neuromuscular blocking drugs
22	Introduction to immunity and inflammation
23	Introduction to immunity and inflammation
24	Immunostimulants, immunosuppressants and tolerogens
25	Histaminergic and antihistaminics
26	Histaminergic and antihistaminics
27	Serotonin and antiserotonin agents
28	Serotonin and antiserotonin agents
29	Kinins as mediators of inflammation
30	Kinins as mediators of inflammation
31	Eicosanoids and platelet activating factor
32	Eicosanoids and platelet activating factor
33	Eicosanoids and platelet activating factor
34	Angiotensins and other putative autacoids
35	Angiotensins and other putative autacoids
36	Angiotensins and inhibitors of renin-angiotensin system

Practical

Sr. No.	Name of the topic
1	Demonstration of adrenergic activity on isolated heart
2	Demonstration of cholinergic activity on isolated intestine
3	Demonstration of adrenergic / cholinergic activity on rabbit eye
4	Demonstration of adrenergic / antiadrenergic activity on blood pressure
5	Effect of drugs on guinea pig tracheal chain preparation
6	Demonstration of effects of drugs on isolated guinea pig ileum
7	Effects of drugs on rabbit jejunum
8	Demonstration of adrenergic activity on isolated rat uterus
9	Demonstration of cholinergic drugs on isolated abdominal muscle
10	Demonstration of the effect of drugs on ECG
11	Effects of autonomic drugs on blood pressure, ECG, etc.
12	Effects of autonomic drugs on blood pressure, ECG, etc.
13	Effect of autacoids on different systems-Isolated Intestine
14	Effect of autacoids on different systems-Isolated Intestine
15	Effect of autacoids on different systems-Isolated Lungs
16	Effect of autacoids on different systems-Isolated Lungs
17	Effect of autacoids on different systems-Isolated Uterus
18	Effect of autacoids on different systems-Isolated Uterus

Course Title : CNS Pharmacology **Course Code : VPT 503** **Credit Hours : 2 +1**	
Sr. No	**Name of the topic**
1	Introduction to CNS – Physiological and anatomical considerations
2	Drugs action on CNS

3	Drugs action on CNS
4	Central neurotransmitters
5	Central neurotransmitters
6	General anaesthesia – History, theories and stages of general anaesthesia
7	General anaesthesia – History, theories and stages of general anaesthesia
8	General anaesthesia – History, theories and stages of general anaesthesia
9	Adjuvants to general anaesthetics
10	Inhalant general anaesthetics
11	Inhalant general anaesthetics
12	Inhalant general anaesthetics
13	Injectable general anaesthetics
14	Injectable general anaesthetics
15	Injectable general anaesthetics
16	Local anaesthetics
17	Local anaesthetics
18	Hypnotics and sedatives
19	Hypnotics and sedatives
20	Hypnotics and sedatives
21	Psychotropic drugs and drugs modifying abnormal behavior of animals
22	Psychotropic drugs and drugs modifying abnormal behavior of animals
23	Anticonvulsants
24	Anticonvulsants
25	Opioid agonists (analgesics) and antagonists
26	Opioid agonists (analgesics) and antagonists
27	Opioid agonists (analgesics) and antagonists
28	Non steroidal anti-inflammatory drugs (NSAIDs)
29	Non steroidal anti-inflammatory drugs (NSAIDs)
30	Non steroidal anti-inflammatory drugs (NSAIDs)

31	CNS stimulants
32	Central muscle relaXants
33	Drugs of abuse
34	Drugs of abuse
35	Currents topics/ Discussion on library assignments
36	Currents topics/ Discussion on library assignments

Practical No	**Name of the topic**
1	Study on general anaesthetics – gaseous & liquid anesthesia
2	Study on general anaesthetics – gaseous & liquid anesthesia
3	Study on local anaesthetics
4	Study on local anaesthetics
5	Study on sedatives and hypnotics
6	Study on sedatives and hypnotics
7	Study on anticonvulsants
8	Study on anticonvulsants
9	Study on antipyretics
10	Study on analgesics
11	Study on analgesics
12	Study on anti-inflammatory drugs
13	Study on anti-inflammatory drugs
14	Study on psychotropic drugs
15	Study on psychotropic drugs
16	Study on CNS stimulants
17	Study on central muscle relaxants
18	Study on central muscle relaxants

Course Title : Digestive and Respiratory Pharmacology
Course Code : VPT 504
Credit Hours : 2 + 1

Sr. No	Name of the topic
1	Drugs acting on Digestive System-General consideration
2	Drugs affecting salivary secretions – Sialics and antisialics
3	Drugs affecting gastric secretion – Stomachics, histamine and gastrin analogues
4	Gastric antisecretory and antiulcer drugs – H_2-receptor antagonists and proton pump inhibitors
5	Gastric antisecretory and antiulcer drugs – H_2-receptor antagonists and proton pump inhibitors
6	Antacids
7	Emetics
8	Antiemetics
9	Carminatives and antizymotics
10	Appetizers and digestants
11	Appetizers and digestants
12	Appetizers and digestants
13	Pro-kinetics
14	Pro-kinetics
15	Cathartics
16	Cathartics
17	Antidiarrhoeic drugs
18	Antidiarrhoeic drugs
19	Antidiarrhoeic drugs
20	Hepatoprotectants
21	Choleretics & Cholagogues
22	Rumen Pharmacology
23	Rumen Pharmacology
24	Rumen Pharmacology

25	Metabolic Diseases of Ruminants & its Treatments
26	Metabolic Diseases of Ruminants & its Treatments
27	Drugs Acting on Respiratory System
28	Antitussives
29	Expectorants
30	Analeptics
31	Analeptics
32	Bronchodilators and other drugs acting on respiratory system
33	Bronchodilators and other drugs acting on respiratory system
34	Gastro-esophageal reflux disease.
35	Current topics/ Discussion on digestive systems
36	Current topics/ Discussion on respiratory.
Practical No	**Name of the topic**
1	Demonstration of anti-ulcer agents
2	Demonstration of anti-ulcer agents
3	Demonstration of effect of anti-Secretory agents
4	Demonstration of effect of anti-Secretory agents
5	Demonstration of effect of drugs on Intestinal motility
6	Measurement of intragastric pressure in rats
7	In vitro evaluation of antacid of test Compounds
8	Evaluation of antidiarrhoeal effect of Drugs
9	Demonstration of effect of anti-emetic Drugs
10	Demonstration of spasmolytic activity in isolated guinea pig lung strips
11	Demonstration of spasmolytic activity in isolated guinea pig lung strips
12	Demonstration of bronchial Hyperreactivity
13	Demonstration of spasmolytic activity in isolated trachea of g. Pig
14	Demonstration of spasmolytic activity in isolated trachea of g. Pig
15	Demonstration of effects of respiratory Depressants in conscious rats

16	Demonstration of effects of respiratory Depressants in conscious rats
17	Antitussive activity after irritant Inhalation in guinea pigs
18	Demonstration of cough induced by Mechanical stimulation

Course Title : Cardiovascular and Urinary System Pharmacology
Course Code : VPT 505
Credit Hours : 2 + 0

Sr. No	Name of the topic
1	General considerations to cardiovascular system
2	General considerations to cardiovascular system
3	Myocardial stimulants – Cardiac glycosides and other myocardial stimulants
4	Myocardial stimulants – Cardiac glycosides and other myocardial stimulants
5	Myocardial stimulants – Cardiac glycosides and other myocardial stimulants
6	Anti-arrhythmic drugs
7	Anti-arrhythmic drugs
8	Anti-arrhythmic drugs
9	Vasodilators and antianginal drugs
10	Vasodilators and antianginal drugs
11	Antihypertensive agents
12	Antihyperlipidemic and anti-hypotensive drugs
13	Haemostatics and coagulants
14	Haemostatics and coagulants
15	Anti-coagulants
16	Anti-coagulants
17	Fibrinolytic and anti-platelet drugs
18	Heamtaopoietic drugs
19	Heamtaopoietic drugs
20	Blood components and blood substitutes
21	Plasma expanders
22	Drugs used in treatment of shock

23	Drugs used in treatment of shock
24	Antihyperlipoproteinemics
25	Physiological basis of renal pharmacology
26	Physiological basis of renal pharmacology
27	Diuretics
28	Diuretics and antidiuretics
29	Urinary acidifier and alkalyzers
30	Drugs affecting fluid, electrolyte and acid-base balance
31	Drugs affecting fluid, electrolyte and acid-base balance
32	Drugs affecting urinary pH and tubular transport
33	Drugs affecting urinary pH and tubular transport
34	Urinary antiseptics, uricoseric and anti-gout drugs
35	Current topics/ Disccusion on library assignments
36	Current topics/ Disccusion on library assignments

Course Title : Endocrine and Reproductive Pharmacology
Course Code : VPT 506
Credit Hours : 2 + 1

Sr. No	**Name of the topic**
1	General considerations to Endocrine and reproductive systems
2	General considerations to Endocrine and reproductive systems
3	Pharmacology of drugs affecting endocrine functions of hypoteleamus
4	Pharmacology of drugs affecting endocrine functions of Pituitary gland
5	Pharmacology of drugs affecting endocrine functions of Pituitary gland
6	Pharmacology of drugs affecting endocrine functions of Pituitary gland
7	Pharmacology of drugs affecting endocrine functions of thyroid gland
8	Pharmacology of drugs affecting endocrine functions of thyroid gland
9	Pharmacology of drugs affecting endocrine functions of adrenals
10	Pharmacology of drugs affecting endocrine functions of adrenals
11	Pharmacology of drugs affecting endocrine functions of adrenals

12	Pharmacology of drugs affecting endocrine functions of the Pancreas
13	Pharmacology of drugs affecting endocrine functions of the Pancreas
14	Physiological basis of calcium and phosphorus homeostasis
15	Physiological basis of calcium and phosphorus homeostasis
16	Hormonal regulation of calcium and phosphorus homeostasis.
17	Hormonal regulation of calcium and phosphorus homeostasis
18	Pharmacology of drugs affecting male reproductive organs,
19	Pharmacology of drugs affecting male reproductive organs,
20	Drugs affecting spermatogenesis
21	Drugs affecting spermatogenesis and erectile dysfunctions
22	Pharmacology of drugs affecting female reproductive organs
23	Pharmacology of drugs affecting female reproductive organs
24	Drugs affecting ovulation
25	Drugs affecting ovulation
26	Drugs affecting oestrus
27	Drugs affecting conception
28	Drugs affecting conception
29	Drugs affecting gestation
30	Drugs affecting gestation
31	Drugs affecting lactation
32	Drugs affecting lactation
33	Oxytocis and other drugs affecting uterus
34	Current topics/ Disccusion on library assignments
35	Current topics/ Disccusion on library assignments
36	Current topics/ Disccusion on library assignments

Practical No	**Name of the topic**

1	Demonstration of Adrenalectomy in Rats
2	Study on Glucocorticoid Activity
3	Transactivation assay for glucocorticoids
4	Biological assay of PMSG in immature female rats
5	Receptor binding assay for LH
6	Assay of long-acting thyroid stimulating factor (LATS) in mice
7	Determination of Oxytocin activity using Isolated uterus
8	Effect of Oxytocin on Chicken blood pressure
9	Estimation of oxytocin using Milk ejection in the lactating rabbit or rat
10	Oxytocin receptor determination
11	Inhibition of gonadotropin secretion in intact animals
12	Inhibition of ovulation and luteinization
13	Radioimmunoassay of rat prolactin
14	Estimation of the effect of prolactin by using the Pigeon crop method
15	Evaluation of effects of prolactin on Lactation in rabbits
16	Bioassay of Vasopressin
17	Bioassay of Acth
18	Bioassay of D-Tubocurarine

Course Title : Chemotherapy
Course Code : VPT 507
Credit Hours : 2 + 1

Sr. No	**Name of the topic**
1	General Consideration of chemotherapy
2	Classification of antimicrobial agents, General principles of antibacterial therapy
3	Combinations of antimicrobial agents-guidelines and indications
4	Bacterial resistance and Cross resistance
5	Guidelines for successful antimicrobial therapy and Adverse reactions to antimicrobial agents

6	Sulfonamides classification, SAR, mechanism of action and antimicrobial spectrum
7	Sulfonamides and Potentiated Sulphonamides -Clinical use and adverse effects
8	Beta-Lactam antibiotics- properties, SAR and mechanism of action
9	Penicillins classification, antimicrobial spectrum and adverse effects
10	Narrow spectrum, broad spectrum and extended spectrum penicillins and their clinical use
11	Cephalosporins-classification and clinical use
12	Cephalosporins - Newer agentsand their antimicrobial spectrum and clinical use
13	Beta-lactamase inhibitors
14	Aminoglycosides –properties, classification and mechanism of action
15	Aminoglycosides and Aminocyclitols- antimicrobial spectrum, resistance, clinical use and adverse effects
16	Chloramphenicol and Thiamphenicol- mechanism of action, antimicrobial spectrum, resistance, clinical use and adverse effects
17	Tetracyclines- mechanism of action, antimicrobial spectrum, resistance, clinical use and adverse effects
18	Tetracyclines Long acting - properties, pharmacokinetics, clinical use and adverse effects
19	Macrolide and licosamides antibiotics - properties, classification, antimicrobial spectrum and mechanism of action
20	Macrolides and licosamides- clinical use and adverse effects
21	Quinolones – properties, classification, antimicrobial spectrum and mechanism of action
22	Quinolones – clinical use and adverse effects
23	Anti- tubercular drugs- mechanism of action, antimicrobial spectrum, resistance, clinical use and adverse effects
24	Other antimicrobials of therapeutic importance
25	Antifungal agents- properties, classification
26	Antifungal agents-Topical and systemic drugs, clinical use and adverse effects

27	Antiviral agents- properties, classification
28	Antiviral agents- clinical use and adverse effects
29	Anticancer agents – General principles, properties, classification and mechanism
30	Anticancer agents – clinical use and adverse effects
31	Anthelmintics – General principles, properties and classification
32	Anthelmintics –Antinematodal, Anticestodal drugs
33	Anthelmintics –Antitrematodal drugs, Ectoparasiticides
34	Antiprotozoan Drugs- General principles, properties and classification
35	Antiprotozoan Drugs- clinical use in small and large animals and adverse effects
36	Anticoccidial drugs

Practical No	**Name of the topic**
1	General methods for assay of chemotherapeutic agents-Disc diffusion method
2	General methods for assay of chemotherapeutic agents-Disc diffusion method
3	General methods for assay of chemotherapeutic agents-Tube dilution method and Test for bactericidal activity
4	General methods for assay of chemotherapeutic agents-Tube dilution method and Test for bactericidal activity
5	Estimation of sulfonamides in biological fluids
6	Estimation of sulfonamides in biological fluids
7	Estimation of penicillins and cephalosporins in biological fluids
8	Estimation of penicillins and cephalosporins in biological fluids
9	Estimation of penicillins and cephalosporins in biological fluids
10	Estimation of penicillins and cephalosporins in biological fluids
11	Estimation of oxytetracyclines in biological fluids
12	Estimation of oxytetracyclines in biological fluids
13	Estimation of trimethoprim in biological fluids

14	Estimation of trimethoprim in biological fluids
15	Estimation of nitrofurans in biological fluids
16	Estimation of trimethoprim in biological fluids
17	Estimation of nitrofurans in biological fluids
18	Estimation of nitrofurans in biological fluids

Course Title : Toxicology of Xenobiotics
Course Code : VPT-508
Credit Hours : 2 + 1

Sr. No	**Name of the topic**
1	Introduction, definitions and fields of toxicology
2	History and scope of toxicology
3	Sources and classification of toxicants
4	General modes of action of poisons
5	Detoxification of poisons
6	Detoxification of poisons
7	Principles and fundamentals of toxicology
8	Principles and fundamentals of toxicology
9	Principles and fundamentals of toxicology
10	Factors affecting toxicity
11	Diagnosis of poisoning
12	Diagnosis of poisoning
13	Treatment and management of poisonings
14	Treatment and management of poisonings
15	Toxicology of metals – Arsenic
16	Toxicology of metals –mercury
17	Toxicology of metals –lead
18	Toxicology of metals –copper and molybdenum,
19	Toxicology of metals –cadmium and iron

20	Toxicology of agrochemicals – Insecticides
21	Toxicology of agrochemicals – herbicides
22	Toxicology of agrochemicals – fungicides
23	Toxicology of agrochemicals – rodenticides
24	Toxicology of agrochemicals – rodenticides
25	Toxicology of solvents and vapours
26	Toxicology of solvents and vapours
27	Feed additives – Growth and performance enhancers, non-protein nitrogen compounds, common salt
28	Feed additives – Growth and performance enhancers, non-protein nitrogen compounds, common salt
29	Radiations and radioactive chemicals
30	Radiations and radioactive chemicals
31	Genetic and developmental toxicology
32	Genetic and developmental toxicology
33	Regulatory and forensic toxicology
34	Regulatory and forensic toxicology
35	Current topics/ Discussion of library assignments
36	Current topics/ Discussion of library assignments

Practical No	**Name of the topic**
1	Collection of Material for Toxicological Investigation
2	Identification and detection of common poison.
3	Extraction and separation of samples of poison from toxicological specimen
4	Dispatch and Processing of Samples for Toxicological Investigation
5	Demonstration of organophosphate toxicity and its antidotal treatment in laboratory animals.

6	Demonstration of organochlorine toxicity and its antidotal treatment in laboratory animals.
7	Demonstration of nitrate/ nitrites toxicity and its antidotal treatment in laboratory animals
8	Spot test for detection of heavy metals
9	Immunotoxicity study of xenobiotics/ toxicants in rats.
10	Genotoxicity testing for xenobiotics by Micronuclei assay in rodents
11	Genotoxicity testing of xenobiotics by chromosomal aberrations test in rodents
12	Genotoxicity testing of xenobiotics by comet assay in rodents
13	Acute Dermal (Irritation/Corrosion) toxicity test in rabbit
14	Eye Irritation/Corrosion test in rabbit.
15	Acute Oral Toxicity - Fixed Dose Procedure.
16	Sub-acute toxicity study: Repeated Dose 28-day Oral Toxicity Study in Rodents
17	Sub-acute toxicity study: Repeated Dose 28-day dermal Toxicity Study in Rodents
18	chronic toxicity study

Course Title : Toxinology
Course Code : VPT 509
Credit Hours : 2 + 1

Sr. No	**Name of the topic**
1	Introduction to plant toxicology, toxins, venoms, mycotoxins, bacterial toxins and phytotoxins etc.
2	Classification and identification of chemical constituents of poisonous plants
3	Classification of Toxins (Phytotoxins, Microbial toxins)
4	Phytotoxins their sources and effects
5	Phytotoxins their sources and effects
6	Study of toxicity of Nitrate/nitrite containing plants : sources, mechanism of toxicity, clinical findings, diagnosis, treatment and control
7	Study of toxicity of Nitrate/nitrite containing plants : sources, mechanism of toxicity, clinical findings, diagnosis, treatment and control

8	Study of toxicity of cyanide containing plants : sources, mechanism of toxicity, clinical findings, diagnosis, treatment and control
9	Study of toxicity of cyanide containing plants : sources, mechanism of toxicity, clinical findings, diagnosis, treatment and control
10	Study of plants containing lectins and cardiac glycosides
11	Photosensitization – I : mechanism of toxicity, clinical signs and treatment
12	Photosensitization – II : mechanism of toxicity, clinical signs and treatment
13	Bracken fern poisoning – Clinical signs, diagnosis and treatment
14	Toxicity of plants containing oxalate – sources, Mechanism of toxicity
15	Toxicity of plants containing oxalate –clinical signs, diagnosis and treatment.
16	Poisoning due to *Strychnos nux-vomica, Ricinus communis* and *Nerium oleander* – Mechanism of toxicity, clinical signs, diagnosis and treatment
17	Poisoning due to *Strychnos nux-vomica, Ricinus communis* and *Nerium oleander* – Mechanism of toxicity, clinical signs, diagnosis and treatment
18	Study of plants producing lathyrism.
19	Toxicity due to *Dhatura alba, Abrus precatorius, Ipomoea carnea* – Mechanism of toxicity, clinical signs, diagnosis and treatment
20	Toxicity due to *Dhatura alba, Abrus precatorius, Ipomoea carnea* – Mechanism of toxicity, clinical signs, diagnosis and treatment
21	Mycotoxins – Hepatotoxins (sporidesmin, aflatoxins and rubratoxins): mechanism of toxicity, symptoms and treatment
22	Mycotoxins – Hepatotoxins (sporidesmin, aflatoxins and rubratoxins): mechanism of. toxicity, symptoms and treatment
23	Nephrotoxins (ochratoxin, citrinin) : clinical signs and treatment
24	Neurotoxins (penitren A and Patulin) : clinical signs and treatment
25	Ergot alkaloids, estrogenism and Trichothecene toxins: clinical signs and treatment
26	Classification of Bacterial toxins : Endotoxins and Exotoxins
27	Bacterial toxins – Diphtheria toxins, Botulinum toxin, Cholera toxin, tetanus toxin, E.coli., Enterotoxin, Endotoxin
28	Bacterial toxins – Diphtheria toxins, Botulinum toxin, Cholera toxin, tetanus toxin, E.coli., Enterotoxin, Endotoxin

29	Bacterial toxins – Diphtheria toxins, Botulinum toxin, Cholera toxin, tetanus toxin, E.coli., Enterotoxin, Endotoxin
30	Snake: types, classification and identification of Poisonous Snakes
31	Toxicity of snake venom – Mechanism of toxicity, clinical signs and treatment
32	Toxicity of snake venom – Mechanism of toxicity, clinical signs and treatment
33	Toxicity due to scorpion – Mechanism of toxicity, clinical signs and treatment
34	Toxicity due to spider and insect stings and toad poisoning – Mechanism of toxicity, clinical signs and treatment
35	Toxicity due to spider and insect stings and toad poisoning – Mechanism of toxicity, clinical signs and treatment
36	Current topics/ Discussion of library assignments

P. No	**Name of the topic**
1	Detection of alkaloids in toxic plants
2	Detection of glycosides in toxic plants
3	Detection of cyanides in toxic plants
4	Detection of nitrate/ nitrite in toxic plants
5	Detection of tannins in toxic plants
6	Detection of saponins in toxic plants
7	Detection of resins in toxic plants
8	Detection of oxalates in toxic plants
9	Extraction and separation of Phytotoxins
10	Phytochemical analysis of toxic plant extracts
11	Phytochemical analysis of toxic plant extracts
12	Detection of mycotoxins in the samples of feed/ fodder and animal tissue
13	Detection of mycotoxins in the samples of feed/ fodder and animal tissue

14	Identification of toxic weeds and plants of the local area
15	Identification of toxic weeds and plants of the state area
16	Identification of toxic weeds and plants of the state area
17	Collection and dispatch of material for analysis in poisoning cases.
18	Toxicants and antidotal therapy
29	Bacterial toxins – Diphtheria toxins, Botulinum toxin, Cholera toxin, tetanus toxin, E.coli., Enterotoxin, Endotoxin
30	Snake: types, classification and identification of Poisonous Snakes
31	Toxicity of snake venom – Mechanism of toxicity, clinical signs and treatment
32	Toxicity of snake venom – Mechanism of toxicity, clinical signs and treatment
33	Toxicity due to scorpion – Mechanism of toxicity, clinical signs and treatment
34	Toxicity due to spider and insect stings and toad poisoning – Mechanism of toxicity, clinical signs and treatment
35	Toxicity due to spider and insect stings and toad poisoning – Mechanism of toxicity, clinical signs and treatment
36	Current topics/ Discussion of library assignments

P. No	**Name of the topic**
1	Detection of alkaloids in toxic plants
2	Detection of glycosides in toxic plants
3	Detection of cyanides in toxic plants
4	Detection of nitrate/ nitrite in toxic plants
5	Detection of tannins in toxic plants
6	Detection of saponins in toxic plants
7	Detection of resins in toxic plants
8	Detection of oxalates in toxic plants
9	Extraction and separation of Phytotoxins

10	Phytochemical analysis of toxic plant extracts
11	Phytochemical analysis of toxic plant extracts
12	Detection of mycotoxins in the samples of feed/ fodder and animal tissue
13	Detection of mycotoxins in the samples of feed/ fodder and animal tissue
14	Identification of toxic weeds and plants of the local area
15	Identification of toxic weeds and plants of the state area
16	Identification of toxic weeds and plants of the state area
17	Collection and dispatch of material for analysis in poisoning cases.
18	Toxicants and antidotal therapy

Course Title : Pharmacological Techniques

Course Code : VPT 510

Credit Hours : 0 + 2

Sr. No	**Name of the topic**
01	Principles of drug
02	Bioassay.Typs of bioassay, bioassay techniques
03	Bioassay.Typs of bioassay, bioassay techniques
04	Bioassay.Typs of bioassay, bioassay techniques
05	Setting up of an isolated tissue preparation and an intact preparation
06	Setting up of an isolated tissue preparation and an intact preparation
07	Study of dose response relationship
08	Study of dose response relationship
09	Suprmaximal effect by cumulative dose response study
10	Study on isolated organ assembly
11	Study on isolated organ assembly
12	Study on isolated organ assembly
13	Intact frog heart perfusion
14	Recording of blood pressure in animals

15	Recording of blood pressure in animals
16	Recording of ECG in animals
17	Screening Programme of drugs: General and multidimensional
18	Screening Programme of drugs: General and multidimensional
19	Gross observational methods in Screening procedures
20	Gross observational methods in Screening procedures
21	Calculation of EC50, potency ratio, PDv, PDx PD values
22	Calculation of ED50,TD50 and LD50
23	Screening of hypnotic activity
24	Study of analgesic, antipyretic and anti-inflammatory activity in laboratory animals
25	Study of analgesic, antipyretic and anti-inflammatory activity in laboratory animals
26	Study of general and local anaesthesia in experimental animals
27	Study of anticonvulsant and muscle relaxant effect of drugs
28	Study of anticonvulsant and muscle relaxant effect of drugs
29	Study of antiarrythmic and antihypertensive action of test compound
30	Study of antiarrythmic and antihypertensive action of test compound
31	Study of Hypotensive action of test drugs
32	Study of Hypotensive action of test drugs
33	Study of hypoglycemic effect of drugs in rat/rabbits
34	Study of antihyperglycemic and anticholinesteric acivity
35	Test of pyrogen using rabbit
36	Guidelines for safety studies of drugs

Course Title : Techniques in Toxicology

Course Code : VPT 511

Credit Hours : 0 + 2

P.No	Name of the topic

1	Guidelines for conducting toxicity studies- OECD, WHO, EPA
2	Cell Culture Techniques for Toxicity Assessment
3	Animal Models in Toxicology
4	In vivo Metabolism Studies:
5	In Vitro Metabolism Studies
6	Immunotoxicity Testing- cytokine assay
7	Immunotoxicity Testing- Lymphocyte proliferation assay
8	Animal Toxicity Test- Acute Toxicity
9	Liquid Chromatography-Mass Spectrometry (LC-MS) Analysis toxicological samples
10	Animal toxicity tests- subacute toxicity
11	Animal toxicity tests - chronic toxicity
12	Specific toxicity test for neurotoxicity
13	Specific toxicity test for immunotoxicity
14	Specific toxicity test for developmental toxicity
15	Specific toxicity test for behavioral toxicity
16	Genotoxicity and Mutagenicity Testing
17	Ames Test: Detect mutagenic potential using bacterial cultures.
18	Micronucleus Assay: Assess chromosomal damage in mammalian cells.
19	Comet Assay: Evaluate DNA damage in individual cells.
20	Specific toxicity test for reproductive toxicity
21	Specific toxicity test for inhalation toxicity
22	Study-specific toxicity test for carcinogenicity
23	Animal toxicological tests to study metabolism
24	Animal toxicological tests for synergism
25	Animal toxicological tests for the study of antagonisms
26	Good laboratory practices in toxicology

27	Evaluation of the impact of toxic substances on ecosystems.
28	Biomaker Analysis in Toxicology
29	Assays for marker enzymes: AchE, GPx, SOD, Catalase
30	Toxicokinetics and pharmacokinetics
31	Analysis of Toxicant in Biological material
32	Biochemical analysis of suspected toxicity specimens
33	Toxicology in Drug Development
34	Hematological evaluation of toxicological samples
35	Evirnomental toxicology and monitoring techniques
36	Recent techniques in toxicological analysis

Course Title : Ethnopharmacology
Course Code : VPT 612
Credit Hours : 1 + 1

Sr. No	Name of the topic
1	History, traditional remedies and regional knowledge in disease cure.
2	Alternate systems of medicine in animals
3	Plant drugs with proven pharmacological and therapeutic efficacy
4	Scope of ethnopharmacology
5	Classification and Identification of Medicinal plants
6	Different Phytoconstituents, Classification and Pharmacological profile.
7	Indigenous drugs used as antimicrobials
8	Indigenous drugs used as analgesics
9	Indigenous drugs used in CNS disorders
10	Indigenous drugs used in Renal and Urinary tract disorders
11	Indigenous drugs used in eye, ear and skin disorders
12	Therapeutic and adverse effects of potential herbal drugs
13	Therapeutic and adverse effects of potential herbal drugs
14	Current topics/ Discussion of library assignments

15	Current topics/ Discussion of library assignments
16	Standardization and clinical validation of bioactive molecules from plant sources.
17	Herbs used as galactagogues, carminatives, antiseptics, antidiarrhoeals, anthelmintics, agents etc
18	Herbs used as Immuno-stimulants, antimicrobials, bioenhancers, analgesics, anti-inflammatory agents,

Practical No	**Name of the topic**
1	Identification of medicinal plants
2	Selection of Raw Materials - selection of plants (based on ethnopharmacological, chemotaxonomic, geographical, or compound structural bases, environmental factors, and parts of plant selected for extraction.
3	Collection, Identification Authentication of Plant Materials - preservation of herbarium samples, authentication and identification of plant samples
4	Drying of plant Materials by using suitable methods - air drying, microwave heating, oven drying, freeze drying
5	Selection of solvents – selection of solvent for extraction on the basis of solvent power (selectivity), boiling temperature, reactivity, viscosity, safety, cost, vapor pressure, and recovery; classification of the Solvents (polar solvents, semi-polar solvents, non-polar solvents)
6	Methods of Extraction - Maceration, Digestion, Remaceration, Infusion and Decoction.
7	Classification, identification and chemical constituents of medicinal plants
8	Preparation of plant extracts in various solvents using different techniques
9	Ethnopharmacological survey
10	Methods of extraction for extracting specific phytoconstituent such as, alkaloids.
11	Methods of extraction for extracting specific phytoconstituent such as, alkaloids, carotenoids.
12	Methods of extraction for extracting specific phytoconstituent such as, fats and waxes
13	Methods of extraction for extracting specific phytoconstituent such as, glycosides and phenolic compounds, proteins, polysaccharides
14	Evaluation of pharmacological activities of extracts used in animals (Analgesic activity)

15	Evaluation of pharmacological activities of extracts using in animals (Muscle Relaxant activity)
16	Visit to medicinal plant garden.
17	Herbal Medicine Regulation and Ethics
18	Herbal Formulation Development

Course Title : Fundamentals of Pharmacokinetics
Course Code : VPT 613
Credit Hours : 1 + 1

Sr. No	Name of the topic
1	Dosage forms of drugs
2	Routes of drug administration
3	Transfer of drugs across biological membranes
4	Absorption of drugs
5	Distribution of drugs
6	Biotransformation of drugs
7	Biotransformation of drugs
8	Excretion of drugs
9	Principles of pharmacokinetics
10	Principles of pharmacokinetics
11	Various Pharmacokinetics models
12	Important pharmacokinetic parameters
13	Dosage regiment
14	*In-vitro* plasma protein binding of drugs
15	PK-PD modelling and Time kill kinetics
16	PK-PD modelling and Time kill kinetics
17	CYP enzymes and their analysis in drug disposition

18	Pharmacokinetic differences in drug metabolism of ruminants and monogastric animals

P. No.	**Name of the topic**
1	Various methods of drug assay
2	Various methods of drug assay
3	Microbiological assay for antimicrobial drugs
4	Microbiological assay for antimicrobial drugs
5	HPLC techniques
6	HPLC techniques
7	HPLC techniques
8	HPLC techniques
9	Bioavailability of drugs
10	Pharmacokinetics in animal disease models
11	Pharmacokinetics in animal disease models
12	*In-vitro* plasma protein binding of drugs
13	Determination of different pharmacokinetic parameters
14	Determination of different pharmacokinetic parameters
15	Analysis of pharmacokinetic data
16	Analysis of pharmacokinetic data
17	PK-PD modeling and Time kill kinetics
18	PK-PD modeling and Time kill kinetics

6. Teaching Schedule :UG, PG , PhD - Prepared by – Course Teacher – Year wise / Course Wise

7. Academic Calendar – UG, PG, PhD -Year wise / Semester Wise

8. College Classes Time Table :UG, PG , PhD - Year wise / Semester Wise

9. Examination Time Table – UG, PG , PhD - Semester / Year wise - Theory and Practical

10. Result –UG, PG , PhD - Semester Wise / Year Wise

Department:

Achievements of the Department: [Chronology as per the MAFSU Statute]

(PDF format)

1. No. of PG students graduated : 103
2. Research Publications: 56
3. Books/ Chapters:
4. No. of research schemes and agency funded projects completed:**4**
5. No. of awards
6. Radio talks : **6**
7. TV Talks : **1**
8. Marathi and Popular publications : **4**
9. Any other achievement by the faculty and student: **Young Scientist Award Dr.S.S.Sole**

Faculty:

- Name of Department: Veterinary Pharmacology and Toxicology
- Brief History of Department: Department of Pharmacology and Toxicology was established in 1961. Post-graduate study programme started in the year 1972. Ph. D. degree programme partly by papers and partly by research has been instituted from the year 2004. So far 83 candidates completed M.V.Sc. successfully and two have completed Ph.D. by research.

- Laboratory Facilities in the Department:
- Diagnostic services offered by the department:
- Faculty : (Department Wise) – [Chronology as per the MAFSU Statute]

Academic officer:

Sr No	Name of Academic Officer	Qualification	Designation	Email id	Contact No	Link to Digital Profile
1	Dr. Sushma Mangesh Ghadigaonkar	PhD	Assistant Professor	sushmaghadigaonkar@mafsu.ac.in	8600844430	
2	Dr. Sushant Shivdas Sole	PhD	Assistant Professor	sushantsole@mafsu.ac.in	8308305389	

Academic staff:

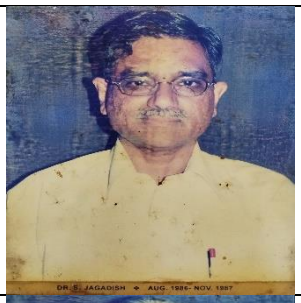
Sr No	Name of Academic staff	Qualification	Designation	Email id	Contact No	Link to Digital Profile

Ministerial staff:

Sr No	Name of Ministerial staff	Department	Email

- List of retired faculty: (Department wise)

Sr. No.	Name of the staff	Designation	Duration	Photo
1.	Dr. M. K. Joshirao	Professor	1962-1964	
2.	Dr. M. K. Shingatgeri	Professor	1965 – 1986	
3.	Dr. H. V. Jahagirdar	Professor	1979 – 1986	

4.	Dr. S. Jagadish	Professor	Aug. 1986 – Nov. 1987	
5.	Dr. V. V. Ranade	Professor	Nov. 1987 – March 1999	
6.	Dr. M.D.Deore	Associate Professor - resigned	1996 - 2007	
7.	Londhe B B	Professor	2000- 2003	
8.	Dr. Madhumanjiri M. Gatne	2003 – 2017		

- Photo gallery (Department Wise)

MAFSU,
Template – College Website(s)

Academic	(Set Template Pixel : 2000 x 768)
	Degree Offered
	Academic Regulations
	Prospectus
	Admissions
	Courses Offered
	Lecture Schedule
	Teaching Schedule
	Academic Calendar
	Time Table (Classes)
	Time Table (Examination)
	Results
Research	
	Externally funded Research Projects:
	Private Agency Projects:
	Thesis
	➢ PG: 103
	➢ Ph.D.: 02
	Research Articles: 56
	Research Recommendations: nil
	Research Priorities : 04
	Research Achievements :
	MOU:
	Accreditation / Approval Certificate

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)


REABSORPTION IN THE NEPHRON
SHOT ON REDMI 7
AI DUAL CAMERA

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)

MAFSU,
Template – College Website(s)


24th Annual Conference of Indian Society of Veterinary Pharmacology and Toxicol
ndia
Nationa
ia
"Trans
Approaches to Mitigate th
ges of Antimicrobial
"Inno
to Stren
Environme
ty through Bi
November 19 -
Organiza
Ph
Veterin
Chikitsa
Mat
icology
ndry
Evam Go

MAFSU,
Template – College Website(s)