

1.3.2 Average Percentage of Courses that include Experimental learning through Projectwork, Internship and Field Work for the year 2023-24

S.NO	SUBJECT CODE	SUBJECT NAME
1	B402T	Medicinal Chemistry –I (Theory)
2	BP303T	Pharmaceutical Microbiology (Theory)
3	BP603T	Herbal Drug Technology (Theory)
4	BP302T	Physical Pharmaceutics -I (Theory)
5	BP405T	Pharmacognosy And Phytochemistry -I (Theory)
6	BP605T	Pharmaceutical Biotechnology (Theory)
7	BP104T	Pharmaceutical Inorganic Chemistry (Theory)
8	BP809ET	Cosmetic Science (Theory)
9	BP701T	Instrumental Methods Of Analysis (Theory)
10	BP507P	Pharmacology -II (Practical)
11	BP103T	Pharmaceutics -I (Theory)
12	BP501T	Medicinal Chemistry –II (Theory)
13	BP404T	Pharmacology -I (Theory)
14	BP403T	Physical Pharmaceutics -II (Theory)
15	BP701P	Instrumental Methods Of Analysis(Practical)
16	BP502T	Industrial Pharmacy-I (Theory)
17	BP505T	Pharmaceutical Jurisprudence (Theory)
18	B606T	Pharmaceutical Quality Assurance (Theory)
19	BP811ET	Advanced Instrumentation Techniques (Theory)
20	BP504T	Pharmacognosy And Phytochemistry -II (Theory)
21	BP301T	Pharmaceutical Organic Chemistry (Theory)
22	BP702T	Industrial Pharmacy-II (Theory)
23	BP107P	Human Anatomy And Physiology I (Practical)
24	BP108P	Pharmaceutical Analysis (Practical)
25	BP109P	Pharmaceutics -I (Practical)
26	BP110P	Pharmaceutical Inorganic Chemistry (Practical)
27	BP111P	Communication Skills (Practical)
28	BP112P	Remedial Biology (Practical)
29	BP207P	Human Anatomy And Physiology II (Practical)
30	BP208P	Pharmaceutical Organic Chemistry –I (Practical)
31	BP209P	Biochemistry (Practical)
32	BP210P	Computer Applications in Pharmacy (Practical)
33	BP305P	Pharmaceutical Organic Chemistry -II (Practical)
34	BP306P	Physical Pharmaceutics -I (Practical)
35	BP307P	Pharmaceutical Microbiology (Practical)
36	BP308P	Pharmaceutical Engineering (Practical)
37	BP406P	Medicinal Chemistry -I (Practical)



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38	BP407P	Physical Pharmaceutics -II (Practical)
39	BP408P	Pharmacology -I (Practical)
40	BP409P	Pharmacognosy And Phytochemistry -I (Practical)
41	BP506P	Industrial Pharmacy-I (Practical)
42	BP508P	Pharmacognosy And Phytochemistry -II (Practical)
43	BP607P	Medicinal Chemistry -III (Practical)
44	BP608P	Pharmacology -III (Practical)
45	BP609P	Herbal Drug Technology(Practical)
46	MPL102T	Advanced Pharmacology-I (Theory)
47	MPL201T	Advanced Pharmacology-II (Theory)
48	MPL103T	Pharmacological And Toxicological Screening Methods -I (Theory)
49	MPL105PA	Pharmacology Practical –I
50	MPL105PB	Pharmacology Practical –II
51	MPL202T	Pharmacological And Toxicological Screening Methods -II (Theory)
52	MPL205PB	Pharmacology Practical –III
53	MPL206PB	Pharmacology Practical –IV
54	T2106	Pharmacotherapeutics -I(Theory)
55	T2101	Pathophysiology (Theory)
56	T3102	Pharmaceutical Analysis (Theory)
57	T4104	Biostatistics and Research Methodology (Theory)
58	T2105	Community Pharmacy (Theory)
59	T3103	Pharmacotherapeutics -II(Theory)
60	T4102	Hospital Pharmacy
61	T1108	Human Anatomy And Physiology (Practical)
62	T1109	Pharmaceutics (Practical)
63	T110A	Medicinal Biochemistry(Practical)
64	T110B	Pharmaceutical Organic Chemistry(Practical)
65	T110C	Pharmaceutical Inorganic Chemistry (Practical)
66	T110D	Remedial Biology (Practical)
67	T2107	Pharmaceutical Microbiology (Practical)
68	T2108	Pharmacognosy And PhytoPharmaceuticals (Practical)
69	T2109	Pharmacotherapeutics –I (Practical)
70	T3107	Pharmacology II(Practical)
71	T3108	Pharmaceutical Analysis (Practical)
72	T3109	Pharmacotherapeutics-II (Practical)
73	T3110	Medicinal Chemistry (Practical)
74	T3111	Pharmaceutical Formulations (Practical)
75	T4107	Pharmacotherapeutics -III (Practical)
76	T4108	Hospital Pharmacy (Practical)
77	T4109	Clinical Pharmacy (Practical)
78	T4110	Biopharmaceutics And Pharmacokinetics (Practical)



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BP402T. MEDICINAL CHEMISTRY – I (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.

Objectives: Upon completion of the course the student shall be able to

1. understand the chemistry of drugs with respect to their pharmacological activity
2. understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. know the Structural Activity Relationship (SAR) of different class of drugs
4. write the chemical synthesis of some drugs

Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs superscripted (*)

UNIT- I

10 Hours

Introduction to Medicinal Chemistry

History and development of medicinal chemistry

Physicochemical properties in relation to biological action

Ionization, Solubility, Partition Coefficient, Hydrogen bonding, Protein binding, Chelation, Bioisosterism, Optical and Geometrical isomerism.

Drug metabolism

Drug metabolism principles- Phase I and Phase II.

Factors affecting drug metabolism including stereo chemical aspects.

UNIT- II

10 Hours

Drugs acting on Autonomic Nervous System

Adrenergic Neurotransmitters:

Biosynthesis and catabolism of catecholamine.

Adrenergic receptors (Alpha & Beta) and their distribution.

Sympathomimetic agents: SAR of Sympathomimetic agents

Direct acting: Nor-epinephrine, Epinephrine, Phenylephrine*, Dopamine.




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Methyldopa, Clonidine, Dobutamine, Isoproterenol, Terbutaline, Salbutamol*, Bitolterol, Naphazoline, Oxymetazoline and Xylometazoline.

- Indirect acting agents: Hydroxyamphetamine, Pseudoephedrine, Propylhexedrine.
- Agents with mixed mechanism: Ephedrine, Metaraminol.

Adrenergic Antagonists:

Alpha adrenergic blockers: Tolazoline*, Phentolamine, Phenoxylbenzamine, Prazosin, Dihydroergotamine, Methysergide.

Beta adrenergic blockers: SAR of beta blockers, Propranolol*, Metibranolol, Atenolol, Betazolol, Bisoprolol, Esmolol, Metoprolol, Labetolol, Carvedilol.

UNIT-III

10 Hours

Cholinergic neurotransmitters:

Biosynthesis and catabolism of acetylcholine.

Cholinergic receptors (Muscarinic & Nicotinic) and their distribution.

Parasympathomimetic agents: SAR of Parasympathomimetic agents

Direct acting agents: Acetylcholine, Carbachol*, Bethanechol, Methacholine, Pilocarpine.

Indirect acting/ Cholinesterase inhibitors (Reversible & Irreversible): Physostigmine, Neostigmine*, Pyridostigmine, Edrophonium chloride, Tacrine hydrochloride, Ambenonium chloride, Isofluorophate, Echothiophate iodide, Parathion, Malathion.

Cholinesterase reactivator: Pralidoxime chloride.

Cholinergic Blocking agents: SAR of cholinolytic agents

Solanaceous alkaloids and analogues: Atropine sulphate, Hyoscyamine sulphate, Scopolamine hydrobromide, Homatropine hydrobromide, Ipratropium bromide*.

Synthetic cholinergic blocking agents: Tropicamide, Cyclopentolate hydrochloride, Clidinium bromide, Dicyclomine hydrochloride*, Glycopyrrolate, Methantheline bromide, Propantheline bromide, Benztropine mesylate, Orphenadrine citrate, Biperidine hydrochloride, Procyclidine hydrochloride*, Tridihexethyl chloride, Isopropamide iodide, Ethopropazine hydrochloride.

UNIT- IV

08 Hours

Drugs acting on Central Nervous System



A. Sedatives and Hypnotics:

Benzodiazepines: SAR of Benzodiazepines, Chlordiazepoxide, Diazepam*, Oxazepam, Chlorazepate, Lorazepam, Alprazolam, Zolpidem

Barbiturates: SAR of barbiturates, Barbital*, Phenobarbital, Mephobarbital, Amobarbital, Butobarbital, Pentobarbital, Secobarbital

Miscellaneous:

Amides & imides: Glutethimide.

Alcohol & their carbamate derivatives: Meproamate, Ethchlorvynol.

Aldehyde & their derivatives: Triclofos sodium, Paraldehyde.

B. Antipsychotics

Phenothiazines: SAR of Phenothiazines - Promazine hydrochloride, Chlorpromazine hydrochloride*, Triflupromazine, Thioridazine hydrochloride, Piperacetazine hydrochloride, Prochlorperazine maleate, Trifluoperazine hydrochloride.

Ring Analogues of Phenothiazines: Chlorprothixene, Thiothixene, Loxapine succinate, Clozapine.

Fluoro buterophenones: Haloperidol, Droperidol, Risperidone.

Beta amino ketones: Molindone hydrochloride.

Benzamides: Sulpieride.

C. Anticonvulsants: SAR of Anticonvulsants, mechanism of anticonvulsant action

Barbiturates: Phenobarbitone, Methobarbital. **Hydantoins:**

Phenytoin*, Mephentyoin, Ethotoin **Oxazolidine diones:**

Trimethadione, Paramethadione **Succinimides:**

Phensuximide, Methsuximide, Ethosuximide* **Urea and**

monoacylureas: Phenacemide, Carbamazepine*

Benzodiazepines: Clonazepam

Miscellaneous: Primidone, Valproic acid, Gabapentin, Felbamate

UNIT - V

07 Hours

Drugs acting on Central Nervous System



General anesthetics:

Inhalation anesthetics: Halothane*, Methoxyflurane, Enflurane, Sevoflurane, Isoflurane, Desflurane.

Ultra short acting barbiturates: Methohexital sodium*, Thiamylal sodium, Thiopental sodium.

Dissociative anesthetics: Ketamine hydrochloride.*

Narcotic and non-narcotic analgesics

Morphine and related drugs: SAR of Morphine analogues, Morphine sulphate, Codeine, Meperidine hydrochloride, Anileridine hydrochloride, Diphenoxylate hydrochloride, Loperamide hydrochloride, Fentanyl citrate*, Methadone hydrochloride*, Propoxyphene hydrochloride, Pentazocine, Levorphanol tartrate.

Narcotic antagonists: Nalorphine hydrochloride, Levallorphan tartrate, Naloxone hydrochloride.

Anti-inflammatory agents: Sodium salicylate, Aspirin, Mefenamic acid*, Meclofenamate, Indomethacin, Sulindac, Tolmetin, Zomepirac, Diclofenac, Ketorolac, Ibuprofen*, Naproxen, Piroxicam, Phenacetin, Acetaminophen, Antipyrine, Phenylbutazone.





PRELIMINARY PHYTOCHEMICAL SCREENING AND
EVALUATION OF INVITRO ANTI-INFLAMMATORY
ACTIVITY OF ETHANOLIC FLOWER EXTRACT OF
TABERNAEMONTANA DIVARICATA

Dissertation submitted to



the partial fulfillment of the requirements for the Award of the degree of
BACHELOR OF PHARMACY

ADAM USHARANI	203H1R0001
ALAMURI K.CH.MADHULAKSHMI	203H1R0002
ARIGELA TEJA	203H1R0003
PEDDIREDDY BALA BHASKARUDU	203H1R0005

Under the Guidance of
DEVIKRAVI SHANKAR, ALTERNATE, PhD

Principal and Professor



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CERTIFICATE

This is to certify that the investigation described in this thesis entitled
"PRELIMINARY PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-
INFLAMMATORY ACTIVITY OF ETHANOLIC FLOWER EXTRACT OF
TABERNAEMONTANA DIVARICATA" was submitted by

of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of
Degree of Bachelor of Pharmacy in the Department of Pharmacology. The Report embedded in this thesis
was carried out under the Guidance of *DR. K. RAVI SHANKAR*, M.Pharm, Ph.D Professor and Principal
(department of pharmacology).

Principal,

Dr. K. Ravi Shankar M.Pharm, Ph.D,

Aditya College of Pharmacy

Surampalem-533437

Dist: East Godavari(A.P)

Place : Surampalem

Date :

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Internal Examiner



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External Examiner

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BP 303 T. PHARMACEUTICAL MICROBIOLOGY (Theory)

45Hours

Scope:

- Study of all categories of microorganisms especially for the production of alcohol antibiotics, vaccines, vitamins enzymes etc..

Objectives: Upon completion of the subject student shall be able to;

1. Understand methods of identification, cultivation and preservation of various microorganisms
2. To understand the importance and implementation of sterilization in pharmaceutical processing and industry
3. Learn sterility testing of pharmaceutical products.
4. Carried out microbiological standardization of Pharmaceuticals.
5. Understand the cell culture technology and its applications in pharmaceutical industries.

Course content:

Unit I

10 Hours

Introduction, history of microbiology, its branches, scope and its importance.

Introduction to Prokaryotes and Eukaryotes

Study of ultra-structure and morphological classification of bacteria, nutritional requirements, raw materials used for culture media and physical parameters for growth, growth curve, isolation and preservation methods for pure cultures, cultivation of anaerobes, quantitative measurement of bacterial growth (total & viable count).

Study of different types of phase contrast microscopy, dark field microscopy and electron microscopy.

Unit II

10 Hours

Identification of bacteria using staining techniques (simple, Gram's & Acid fast staining) and biochemical tests (IMViC).

Study of principle, procedure, merits, demerits and applications of physical, chemical gaseous, radiation and mechanical method of sterilization.

Evaluation of the efficiency of sterilization methods.



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Equipments employed in large scale sterilization.

Sterility indicators.

Unit III

10 Hours

Study of morphology, classification, reproduction/replication and cultivation of Fungi and Viruses.

Classification and mode of action of disinfectants

Factors influencing disinfection, antiseptics and their evaluation. For bacteriostatic and bactericidal actions

Evaluation of bactericidal & Bacteriostatic.

Sterility testing of products (solids, liquids, ophthalmic and other sterile products) according to IP, BP and USP.

Unit IV

08 Hours

Designing of aseptic area, laminar flow equipments; study of different sources of contamination in an aseptic area and methods of prevention, clean area classification.

Principles and methods of different microbiological assay. Methods for standardization of antibiotics, vitamins and amino acids.

Assessment of a new antibiotic.

Unit V

07Hours

Types of spoilage, factors affecting the microbial spoilage of pharmaceutical products, sources and types of microbial contaminants, assessment of microbial contamination and spoilage.

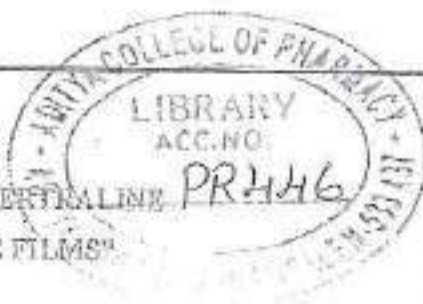
Preservation of pharmaceutical products using antimicrobial agents, evaluation of microbial stability of **formulations**.

Growth of animal cells in culture, general procedure for cell culture, Primary, established and transformed cell cultures.

Application of cell cultures in pharmaceutical industry and research.



**"FORMULATION AND EVALUATION OF SERTRALINE
HYDROCHLORIDE ORO DISPERSIBLE FILMS"**



Is a dissertation submitted to
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,



In the partial fulfillment of the requirements for the award of the degree of
BACHELOR OF PHARMACY

Submitted by

B.RAMYA KRISHNA [203H1R0006]

CH.BALA SRI [203H1R0007]

CH.NAGA SURENDER [203H1R0008]

CH. SRI KALYANI [203H1R0009]

CH.S.V.LEELA KUMAR [203H1R0010]

UNDER THE GUIDANCE OF
K. VENKATESWARLU M. PHARM. (Ph.D.)
ASSOCIATE PROFESSOR
DEPARTMENT OF PHARMACEUTICS



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2024

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CERTIFICATE

This is to certify that the investigation described in this thesis entitled "FORMULATION AND EVALUATION OF SERTRALINE HYDROCHLORIDE ORO DISPERSIBLE FILMS" was submitted by BETHA NAGA RAMYA KRISHNA [203H1R0006], CHAMAKURI BALA SRI [203H1R0007], CHAVABHATTINA NAGA SURENDER [203H1R0008], CHELLINGI SRI KALYANI [203H1R0009], CHIKKALA S.V.LEELA KUMAR [203H1R0010] of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfilment of Degree of Bachelor of Pharmacy in the Department of pharmaceuticals. The report embedded in this thesis was carried out under the Guidance of Mr. K. VENKATESWARLU M.Pharm., Ph.D. Associate professor, Dept. of pharmaceuticals in Aditya College of Pharmacy, Surampalem.

Principal,

Dr. K. Ravi Shankar

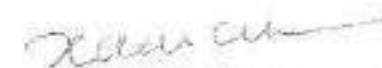
M.Pharm., Ph.D.

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EXTERNAL EXAMINER




INTERNAL EXAMINER

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BP 603 T. HERBAL DRUG TECHNOLOGY (Theory)

45 hours

Scope: This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs.

Objectives: Upon completion of this course the student should be able to:

1. understand raw material as source of herbal drugs from cultivation to herbal drug product
2. know the WHO and ICH guidelines for evaluation of herbal drugs
3. know the herbal cosmetics, natural sweeteners, nutraceuticals
4. appreciate patenting of herbal drugs, GMP.

Course content:

UNIT-I

11 Hours

Herbs as raw materials

Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation

Source of Herbs

Selection, identification and authentication of herbal materials

Processing of herbal raw material

Biodynamic Agriculture

Good agricultural practices in cultivation of medicinal plants including Organic farming.

Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

Indian Systems of Medicine

a) Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy

b) Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma.

UNIT-II

7 Hours

Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.

Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina

Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.

UNIT-III

10 Hours

Herbal Cosmetics




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Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums colours, perfumes, protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.

Herbal excipients:

Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.

Herbal formulations :

Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes

UNIT- IV

10 Hours

Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs
Stability testing of herbal drugs.

Patenting and Regulatory requirements of natural products:

- a) Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy
- b) Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.

Regulatory Issues - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs.

UNIT-V

07 Hours

General Introduction to Herbal Industry

Herbal drugs industry: Present scope and future prospects.

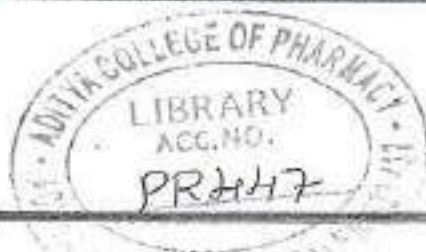
A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.

Schedule T – Good Manufacturing Practice of Indian systems of medicine

Components of GMP (Schedule – T) and its objectives

Infrastructural requirements, working space, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records.





**ANTI-OXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF
ETHANOLIC FLOWER EXTRACT OF VOLKAMERIA INERMIS**

Dissertation submitted to

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA**



In the partial fulfillment of the requirements for the Award of the Degree of
BACHELOR OF PHARMACY

Submitted by

CHINNAM DAYAKAR	(203H1R0011)
DESAMSETTY SIRISHA	(203H1R0012)
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UNDER THE GUIDANCE OF

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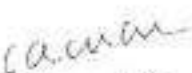
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CERTIFICATE

This is to certify that the investigation described on this thesis entitled "ANTI-OXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF ETHANOLIC FLOWER EXTRACT OF *VOLKAMERIA INERMIS*" was submitted by CHINNAM DAYAKARI (203H1R0011), DESAMSSETTY SIRISHA (203H1R0012), DUDLA SANDHYA (203H1R0013), ELLURI DEVI KALLA VYSIDHANA (203H1R0014), GARIKINA SANASA (203H1R0015) of Aditya College of Pharmacy, Surampalem, affiliated to Jawaharlal Nehru Technological University, Kakinada for the partial fulfillment of Degree of Bachelor of Pharmacy. The Report embedded in this thesis was carried out under the guidance of Mrs. B.N.B VAIDEHI, *M.Pharm (Ph.D)* Associate Professor, Department of pharmaceutical chemistry, Aditya College of Pharmacy, Surampalem.


Dr. K. Ravi Shankar, *M.Pharm, Ph.D*
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External Examiner




External Examiner
Principal
Aditya College of Pharmacy

Aditya Nagar, ADB Road, Surampalem-533 437, Near Kakinada, E.G.D.L.A.P.

8. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.

BP302T. PHYSICAL PHARMACEUTICS-I (Theory)

45Hours

Scope: The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.

Objectives: Upon the completion of the course student shall be able to

1. Understand various physicochemical properties of drug molecules in the designing the dosage forms
2. Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.

Course Content:

UNIT-I

10 Hours

Solubility of drugs: Solubility expressions, mechanisms of solute solvent interactions, ideal solubility parameters, solvation & association, quantitative approach to the factors influencing solubility of drugs, diffusion principles in biological systems. Solubility of gas in liquids, solubility of liquids in liquids, (Binary solutions, ideal solutions) Raoult's law, real solutions. Partially miscible liquids, Critical solution temperature and applications. Distribution law, its limitations and applications

UNIT-II

10Hours

States of Matter and properties of matter: State of matter, changes in the state of matter, latent heats, vapour pressure, sublimation critical point, eutectic mixtures, gases, aerosols – inhalers, relative humidity, liquid complexes, liquid crystals, glassy states, solid-crystalline, amorphous & polymorphism.

Physicochemical properties of drug molecules: Refractive index, optical rotation, dielectric constant, dipole moment, dissociation constant, determinations and applications

UNIT-III

08 Hours

Surface and Interfacial phenomenon: Liquid interface, surface & interfacial tensions,

surface free energy, measurement of surface & interfacial tensions, spreading coefficient, adsorption at liquid interfaces, surface active agents, HLB Scale, solubilisation, detergency, adsorption at solid interface.



UNIT-IV

08Hours

Complexation and protein binding: Introduction, Classification of Complexation, Applications, methods of analysis, protein binding, Complexation and drug action, crystalline structures of complexes and thermodynamic treatment of stability constants.

UNIT-V

07 Hours

pH, buffers and Isotonic solutions: Sorensen's pH scale, pH determination (electrometric and calorimetric), applications of buffers, buffer equation, buffer capacity, buffers in pharmaceutical and biological systems, buffered isotonic solutions.



**MOLECULAR DOCKING AND ADME STUDIES OF
RUXOLITINIB DERIVATES AS JANUS KINASE
INHIBITORS IN TREATMENT OF MYELOFIBROSIS**

submitted to Dissertation



*Jawaharlal Nehru Technological University, Kakinada in partial fulfillment
of the requirements for the degree of Bachelor of Pharmacy*

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

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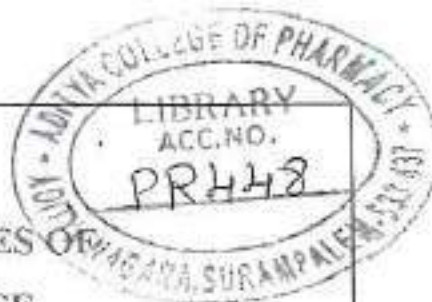
Under the Guidance of
B.N.B.VAIDEHI, M. Pharm(Ph.D)



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Wavy Line Institute for Active Institute of Pharmaceutical Science & Research

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CERTIFICATE

This is to certify that the dissertation entitled "**Molecular Docking AND ADME STUDIES OF RUXOLITINIB DERIVATIVES AS JANUS KINASE INHIBITORS IN TREATMENT OF MYELOFIBROSIS**" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the requirements for the award of the degree of Bachelor of pharmacy is a record of original research work carried out by, **GODA VAMSI KRISHNA(203H1R0016), GORUPUTI BHARATHI(203H1R0017), KADIYALA LAKSHMI PRASANNA (203H1R0018), KAMAYARAPU KAVYA SINDHU (203H1R0019), KARRI SHOBHA RANI (203H1R0020)**. They have done this research work under the supervision of **B.N.B.Vaidehi, M. Pharm,(Ph.D)** and it has not been previously submitted to any other university or academic institution for any higher degree.

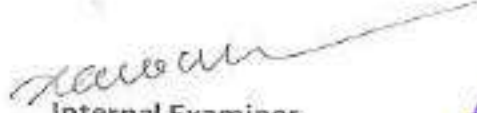

Principal,

Dr. K. Ravishankar, M. Pharm, Ph.D

Professor,

Aditya College of Pharmacy,

Surampalem- 533437.


Internal Examiner




External Examiner

PRINCIPAL
Aditya College of Pharmacy
SURAMPALAM- 533 437

Aditya Nagar, ADB Road, Surampalem-533 437, Near Kakinada, E.G.Dt., A.P.

BP 405 T.PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)

45 Hours

Scope: The subject involves the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.

Objectives: Upon completion of the course, the student shall be able

1. to know the techniques in the cultivation and production of crude drugs
2. to know the crude drugs, their uses and chemical nature
3. know the evaluation techniques for the **herbal** drugs
4. to carry out the microscopic and morphological evaluation of crude drugs

Course Content:

UNIT-I

10 Hours

Introduction to Pharmacognosy:

- (a) Definition, history, scope and development of Pharmacognosy
- (b) Sources of Drugs – Plants, Animals, Marine & Tissue culture
- (c) Organized drugs, unorganized drugs (dried latex, dried juices, dried extracts, gums and mucilages, oleoresins and oleo- gum -resins).

Classification of drugs:

Alphabetical, morphological, taxonomical, chemical, pharmacological, chemo and sero taxonomical classification of drugs

Quality control of Drugs of Natural Origin:

Adulteration of drugs of natural origin. Evaluation by organoleptic, microscopic, physical, chemical and biological methods and properties.

Quantitative microscopy of crude drugs including lycopodium spore method, leaf constants, camera lucida and diagrams of microscopic objects to scale with camera lucida.

UNIT-II

10 Hours

Cultivation, Collection, Processing and storage of drugs of natural origin:

- Cultivation and Collection of drugs of natural origin
- Factors influencing cultivation of medicinal plants.
- Plant hormones and their applications.
- Polyploidy, mutation and hybridization with reference to medicinal plants

Conservation of medicinal plants

UNIT-III

07 Hours

Plant tissue culture:

- Historical development of plant tissue culture, types of cultures, Nutritional requirements, growth and their maintenance.
- Applications of plant tissue culture in pharmacognosy.
- Edible vaccines



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UNIT IV

10 Hours

Pharmacognosy in various systems of medicine:

Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine.

Introduction to secondary metabolites:

Definition, classification, properties and test for identification of Alkaloids, Glycosides, Flavonoids, Tannins, Volatile oil and Resins

UNIT V

08 Hours

Study of biological source, chemical nature and uses of drugs of natural origin containing following drugs

Plant Products:

Fibers - Cotton, Jute, Hemp

Hallucinogens, Teratogens, Natural allergens

Primary metabolites:

General introduction, detailed study with respect to chemistry, sources, preparation, evaluation, preservation, storage, therapeutic used and commercial utility as Pharmaceutical Aids and/or Medicines for the following Primary metabolites:

Carbohydrates: Acacia, Agar, Tragacanth, Honey

Proteins and Enzymes : Gelatin, casein, proteolytic enzymes (Papain, bromelain, serratiopeptidase, urokinase, streptokinase, pepsin).

Lipids(Waxes, fats, fixed oils) : Castor oil, Chaulmoogra oil, Wool Fat, Bees Wax

Marine Drugs:

Novel medicinal agents from marine sources



**"PRELIMINARY PHYTOCHEMICAL SCREENING AND FORMULATION OF
HERBAL OINTMENT"**

Dissertation submitted to

*Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the
requirements for the degree of Bachelor of Pharmacy*



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

SUBMITTED BY :

KETHA GOWRI SRI (203H1R0021)
KORLA DEVI CHANDRIKA (203H1R0022)
KOTAGIRI V P G ANJANA MONIKA (203H1R0023)
MADEPALLI GANI LAKSHMI (203H1R0024)
MADEPALLI SAMYUKTHA (203H1R0025)

UNDER THE GUIDANCE OF

Dr. G Veda Priya, M. Pharm, PhD.

ASSOCIATE PROFESSOR



ADITYA COLLEGE OF PHARMACY

SURAMPalem - 533437

2023-24


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Approved by AICTE & PCI - NEW DELHI, Affiliated to JNTUK KAKINADA
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CERTIFICATE

This is to certify that the dissertation entitled "Preliminary Phytochemical Screening and Formulation of Herbal Ointment" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfilment of the requirements for the award of the degree of Bachelor of pharmacy is a record of original research work carried out by KETHA GOWRI SRI (203H1R0021), KORLA DEVI CHANDRIKA (203H1R0022), KOTAGIRI V P G ANJANA MONIKA (203H1R0023), MADEPALLI GANI LAKSHMI (203H1R0024), MADEPALLI SAMYUKTHA (203H1R0025). They have done this research work under the supervision of Dr. G. Veda Priya, *M.Pharm, PhD*, and it has not been previously submitted to any other university or academic institution for any higher degree.

Dr. K. Ravishankar, *M.Pharm, Ph.D*

Principal and Professor,

Aditya College of Pharmacy,

Surampalem- 533437.

Place: Surampalem

Date: 06/4/24

External Examiner

K. Sankar
External Examiner



G. Veda Priya
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BP 605 T. PHARMACEUTICAL BIOTECHNOLOGY (Theory)

45 Hours

Scope:

- Biotechnology has a long promise to revolutionize the biological sciences and technology.
- Scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology makes the subject interesting.
- Biotechnology is leading to new biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs.
- Biotechnology has already produced transgenic crops and animals and the future promises lot more.
- It is basically a research-based subject.

Objectives: Upon completion of the subject student shall be able to;

1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
2. Genetic engineering applications in relation to production of pharmaceuticals
3. Importance of Monoclonal antibodies in Industries
4. Appreciate the use of microorganisms in fermentation technology

Unit I

10 Hours

- a) Brief introduction to Biotechnology with reference to Pharmaceutical Sciences.
- b) Enzyme Biotechnology- Methods of enzyme immobilization and applications.
- c) Biosensors- Working and applications of biosensors in Pharmaceutical Industries.
- d) Brief introduction to Protein Engineering.
- e) Use of microbes in industry. Production of Enzymes- General consideration - Amylase, Catalase, Peroxidase, Lipase, Protease, Penicillinase.
- f) Basic principles of genetic engineering.

Unit II

10 Hours

- a) Study of cloning vectors, restriction endonucleases and DNA ligase.
- b) Recombinant DNA technology. Application of genetic engineering in medicine.
- c) Application of r DNA technology and genetic engineering in the production of:
 - i) Interferon ii) Vaccines- hepatitis- B iii) Hormones-Insulin.
- d) Brief introduction to PCR




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Unit III

10 Hours

Types of immunity- humoral immunity, cellular immunity

- a) Structure of Immunoglobulins
- b) Structure and Function of MHC
- c) Hypersensitivity reactions, Immune stimulation and Immune suppressions.
- d) General method of the preparation of bacterial vaccines, toxoids, viral vaccine, antitoxins, serum-immune blood derivatives and other products relative to immunity.
- e) Storage conditions and stability of official vaccines
- f) Hybridoma technology- Production, Purification and Applications
- g) Blood products and Plasma Substitutes.

Unit IV

08Hours

- a) Immuno blotting techniques- ELISA, Western blotting, Southern blotting.
- b) Genetic organization of Eukaryotes and Prokaryotes
- c) Microbial genetics including transformation, transduction, conjugation, plasmids and transposons.
- d) Introduction to Microbial biotransformation and applications.
- e) Mutation: Types of mutation/mutants.

Unit V

07 Hours

- a) Fermentation methods and general requirements, study of media, equipments, sterilization methods, aeration process, stirring.
- b) Large scale production fermenter design and its various controls.
- c) Study of the production of - penicillins, citric acid, Vitamin B12, Glutamic acid, Griseofulvin,
- d) Blood Products: Collection, Processing and Storage of whole human blood, dried human plasma, plasma Substitutes.

Recommended Books (Latest edition):

1. B.R. Glick and J.J. Pasternak: Molecular Biotechnology: Principles and Applications of Recombinant DNA: ASM Press Washington D.C.
2. RA Goldsby et. al., : Kuby Immunology.
3. J.W. Goding: Monoclonal Antibodies.
4. J.M. Walker and E.B. Gingold: Molecular Biology and Biotechnology by Royal



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SYNTHESIS AND ANTI **BACTERIAL** EVALUATION OF
INDOLE-3-BUTYRIC ACID AND ITS DERIVATIVES

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

MANE AMRUTHA	203H1R0026
MANE SRI SURYA KALA	203H1R0027
MARRI SATYA BHULAKSHMI	203H1R0028
MARRIPUDI PULLAIAH	203H1R0029
NADIMPALLI LOHITHA	203H1R0030

Under the Guidance of

DR. KUPPALA RAMA KRISHNA, PhD



ADITYA COLLEGE OF PHARMACY

SURAMPALAM-533437

APRIL-2024



Principal
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CERTIFICATE

This is to certify that the investigation described in this thesis entitled "**SYTHESIS AND ANTIBACTERIAL EVALUATION OF INDOLE-3-BUTYRIC ACID AND IT'S DERIVATIVES**" was submitted by **DR. AMRUTHA (2004H100023), M.SRI SURYA KALA (2004H100027), M. SATYA BHULAKSHMI (2004H100028), SUPRIYALAKSHMI (2004H100029), N. L. OMITHA (2004H100030)** of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of Degree of Bachelor of Pharmacy in the Department of Medicinal Chemistry. The Report embedded in this thesis was carried out under the Guidance of **Dr. KUPPALA RAMA KRISHNA, M.Pharm, Ph.D** Associate professor (department of pharmaceutical chemistry).

Principal,

Dr. K. Ravi Shankar, M.Pharm, Ph.D,

Aditya College of Pharmacy

Surampalem-533437

District: East Godavari [AP]

Place: Surampalem

Date: 6/4/2024

Internal Examiner



External Examiner

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SURAMPALAM- 533 437

Aditya Nagar, ADB Road, Surampalem-533 437, Near Kakinada, E.G.D., A.P.

BP104T. PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)

45 Hours

Scope: This subject deals with the monographs of inorganic drugs and pharmaceuticals.

Objectives: Upon completion of course student shall be able to

- know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
- understand the medicinal and pharmaceutical importance of inorganic compounds

Course Content:

UNIT I

10 Hours

- **Impurities in pharmaceutical substances:** History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate

General methods of preparation, assay for the compounds superscripted with asterisk (*), properties and medicinal uses of inorganic compounds belonging to the following classes

UNIT II

10 Hours

- **Acids, Bases and Buffers:** Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.
- **Major extra and intracellular electrolytes:** Functions of major physiological ions, Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance.
- **Dental products:** Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.

UNIT III

10 Hours

- **Gastrointestinal agents**
Acidifiers: Ammonium chloride* and Dil. HCl
Antacid: Ideal properties of antacids, combinations of antacids, Sodium



Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture

Cathartics: Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite

Antimicrobials: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations

UNIT IV

08 Hours

- **Miscellaneous compounds**

Expectorants: Potassium iodide, Ammonium chloride*.

Emetics: Copper sulphate*, Sodium potassium tartarate

Haematinics: Ferrous sulphate*, Ferrous gluconate

Poison and Antidote: Sodium thiosulphate*, Activated charcoal, Sodium nitrite³³³

Astringents: Zinc Sulphate, Potash Alum

UNIT V

07 Hours

- **Radiopharmaceuticals:** Radio activity, Measurement of radioactivity, Properties of α , β , γ radiations, Half life, radio isotopes and study of radio isotopes - Sodium iodide I^{131} , Storage conditions, precautions & pharmaceutical application of radioactive substances.




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**"FORMULATION AND EVALUATION OF POLYHERBAL SOAP WITH
ANTI-MICROBIAL ACTIVITY FOR TREATING SKIN AILMENTS"**

Dissertation submitted to

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA**



In the partial fulfillment of the requirements for the Award of the Degree of

BACHELOR OF PHARMACY

SUBMITTED BY

NAKKA SANDHYA	(203H1R0031)
NAKKA SATISH	(203H1R0032)
NALLAM MAHA LAKSHMI SANDHYA SRI	(203H1R0033)
NASHEELA BEGUM	(203H1R0034)
NEMALA JESSY ELIZABETH	(203H1R0035)

UNDER THE GUIDANCE OF

Mrs. A. SWETHA M. Pharm.,

Associate Professor



ADITYA COLLEGE OF PHARMACY

SURAMPALEM-533437

2020-2024



Swetha
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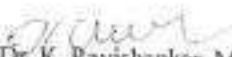
Approved by AICTE, PO-NEW DELHI, Affiliated to JNTU, Kakinada

Approved by State Council of Higher Education, Government of Andhra Pradesh

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CERTIFICATE

This is to certify that the dissertation work entitled "FORMULATION AND EVALUATION OF POLYHERBAL SOAP WITH ANTI-MICROBIAL ACTIVITY FOR TREATING SKIN AILMENTS" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the requirements for the award of the degree of Bachelor of Pharmacy is a record of original research work carried out by NAKKA SANDHYA (200100001), NAKKA SATISH (200100002), NALLAM MAHA LAKSHMI SANDHYA SRI (200100003), NASHEELA BEGUM (200100004), NEMALA JESSY ELIZABETH (200100005). They have done this research work under the supervision of Mrs. A. Swetha, M. Pharm., Associate Professor, (Department of Pharmaceutical Technology) and it has not been previously submitted to any other university or academic institution for any higher degree.

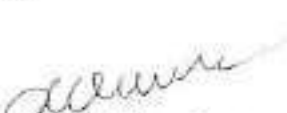

Dr. K. Ravishankar, M. Pharm, Ph. D

Principal and Professor,

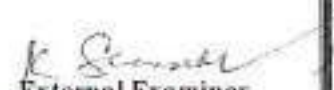
Aditya College of Pharmacy,
Surampalem- 533437

Place:

Date:


Internal Examiner




External Examiner


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Aditya College of Pharmacy
SURAMPALEM- 533 437

BP809ET. COSMETIC SCIENCE(Theory)

45Hours

UNIT I

10Hours

Classification of cosmetic and cosmeceutical products

Definition of cosmetics as per Indian and EU regulations, Evolution of cosmeceuticals from cosmetics, cosmetics as quasi and OTC drugs

Cosmetic excipients: Surfactants, rheology modifiers, humectants, emollients, preservatives. Classification and application

Skin: Basic structure and function of skin.

Hair: Basic structure of hair. Hair growth cycle.

Oral Cavity: Common problem associated with teeth and gums.

UNIT II

10 Hours

Principles of formulation and building blocks of skin care products:

Face wash,

Moisturizing cream, Cold Cream, Vanishing cream and their advantages and disadvantages. Application of these products in formulation of cosmeceuticals.

Antiperspirants & deodorants- Actives & mechanism of action.

Principles of formulation and building blocks of Hair care products:

Conditioning shampoo, Hair conditioner, anti-dandruff shampoo.

Hair oils.

Chemistry and formulation of Para-phenylene diamine based hair dye.

Principles of formulation and building blocks of oral care products:

Toothpaste for bleeding gums, sensitive teeth. Teeth whitening, Mouthwash.

UNIT III

10 Hours

Sun protection, Classification of Sunscreens and SPF.

Role of herbs in cosmetics:

Skin Care: Aloe and turmeric

Hair care: Henna and amla.

Oral care: Neem and clove

Analytical cosmetics: BIS specification and analytical methods for shampoo, skin-cream and toothpaste.

UNIT IV

08 Hours.

Principles of Cosmetic Evaluation: Principles of sebumeter, corneometer. Measurement of TEWL, Skin Color, Hair tensile strength, Hair combing properties

Soaps, and syndet bars. Evolution and skin benefits.



UNIT V

07 Hours

Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms Comedogenic, dermatitis.

Cosmetic problems associated with Hair and scalp: Dandruff, Hair fall causes

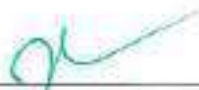
Cosmetic problems associated with skin: blemishes, wrinkles, acne, prickly heat and body odor.

Antiperspirants and Deodorants- Actives and mechanism of action

References

- 1) Harry's Cosmeticology, Wilkinson, Moore, Seventh Edition, George Godwin.
- 2) Cosmetics – Formulations, Manufacturing and Quality Control, P.P. Sharma, 4th Edition, Vandana Publications Pvt. Ltd., Delhi.
- 3) Text book of cosmeticology by Sanju Nanda & Roop K. Khar, Tata Publishers.



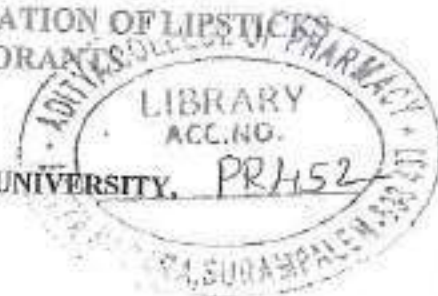

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**FORMULATION DEVELOPMENT AND EVALUATION OF LIPSTICKS
USING NATURAL EDIBLE COLORANTS**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,

KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

N. VANITHA	(203H1R0036)
P. PRATAP	(203H1R0037)
P. SURATNA	(203H1R0038)
P. NAMRATHA RAGHA	(203H1R0039)
P. LAKSHMI LAHARI	(203H1R0040)

Under the Guidance of

Mrs. K. KEERTHISAL M. PHD
Assistant professor,
(Dept of pharmaceuticals)



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This is to certify that the investigation described in this thesis entitled "FORMULATION DEVELOPMENT AND EVALUATION OF LIPSTICKS USING NATURAL EDIBLE COLORANTS" was submitted by N. VANITHA (203H1R0036) P. PRATAP (203H1R0037) P. SURATNA (203H1R0038) P. NAMRATHA RAGHA (203H1R0039) P. LAKSHMI LAHARI (203H1R0040) of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of Degree of Bachelor of Pharmacy in the Department of pharmaceuticals. The report embedded in this thesis was carried out under the Guidance of Mrs. K. KEERTHI S AI, Assistant professor, Dept. of Pharmaceuticals in Aditya College of Pharmacy, Surampalem.

Principal,

Dr. K. Ravi Shankar M. Pharm, Ph. D,
Aditya College of Pharmacy,
Surampalem-533437
District: East Godavari (A.P).



K. Keerthi
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BP701T. INSTRUMENTAL METHODS OF ANALYSIS (Theory)

45 Hours

Scope: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.

Objectives: Upon completion of the course the student shall be able to

1. Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis
2. Understand the chromatographic separation and analysis of drugs.
3. Perform quantitative & qualitative analysis of drugs using various analytical instruments.

Course Content:

UNIT –I

10 Hours

UV Visible spectroscopy

Electronic transitions, chromophores, auxochromes, spectral shifts, solvent effect on absorption spectra, Beer and Lambert's law, Derivation and deviations.

Instrumentation - Sources of radiation, wavelength selectors, sample cells, detectors- Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode.

Applications - Spectrophotometric titrations, Single component and multi component analysis

Fluorimetry

Theory, Concepts of singlet, doublet and triplet electronic states, internal and external conversions, factors affecting fluorescence, quenching, instrumentation and applications

UNIT –II

10 Hours

IR spectroscopy

Introduction, fundamental modes of vibrations in poly atomic molecules, sample handling, factors affecting vibrations

Instrumentation - Sources of radiation, wavelength selectors, detectors - Golay cell, Bolometer, Thermocouple, Thermister, Pyroelectric detector and applications

Flame Photometry-Principle, interferences, instrumentation and applications



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Atomic absorption spectroscopy- Principle, interferences, instrumentation and applications

Nepheloturbidometry- Principle, instrumentation and applications

UNIT –III

10 Hours

Introduction to chromatography

Adsorption and partition column chromatography-Methodology, advantages, disadvantages and applications.

Thin layer chromatography- Introduction, Principle, Methodology, Rf values, advantages, disadvantages and applications.

Paper chromatography-Introduction, methodology, development techniques, advantages, disadvantages and applications

Electrophoresis- Introduction, factors affecting electrophoretic mobility, Techniques of paper, gel, capillary electrophoresis, applications

UNIT –IV

08 Hours

Gas chromatography - Introduction, theory, instrumentation, derivatization, temperature programming, advantages, disadvantages and applications

High performance liquid chromatography (HPLC)-Introduction, theory, instrumentation, advantages and applications.

UNIT –V

07 Hours

Ion exchange chromatography- Introduction, classification, ion exchange resins, properties, mechanism of ion exchange process, factors affecting ion exchange, methodology and applications

Gel chromatography- Introduction, theory, instrumentation and applications

Affinity chromatography- Introduction, theory, instrumentation and applications





**"UV-Method Development and Validation of Empagliflozin in Bulk
and Tablet Dosage form"**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the Degree of

BACHELOR OF PHARMACY

SUBMITTED BY

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POSINA .N.V.D.G.L.TULASI	(203H1R0042)
POTHALA RAJI CHANDRIKA	(203H1R0043)
RAJABOINA BHARATH KUMAR	(203H1R0044)
SIVARATHRI ANILKUMAR	(203H1R0046)

UNDER THE GUIDANCE OF
Mrs. A. SREE GEETHA M.Pharm.
ASSOCIATE PROFESSOR



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(Formerly known as Sri Sai Aditya Institute of Pharmaceutical Science & Research)

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Website: www.ocop.edu.in

CERTIFICATE

This is to certify that the investigation described on this thesis entitled "*UV -Method Development and Validation of Empagliflozin in Bulk and Tablet Dosage form*" was submitted by PITTA TITUS (203H1R0041) POSINA,N.V.D.G.L.TULAST(203H1R0042),POTHALA RAB CHANDRIKA(203H1R0043), RAJABOINA BHARATH KUMAR (203H1R0044), SIVAKATHI ANILKUMAR (203H1R0046) of Aditya College of Pharmacy, Surampalem, affiliated to Jawaharlal Nehru Technological University, Kakinada for the partial fulfillment of Degree of Bachelor of Pharmacy. The Report embedded in this thesis was carried out under the guidance of Mrs.A.SREE GEETHA M.Pharm Associate Professor, Dept.of Pharmaceutical Analysis, Aditya College of Pharmacy, Surampalem.

[Signature]
Dr.K.RaviShankar, M.Pharm, Ph.D
Principal and Professor,
Aditya College of Pharmacy,
Surampalem -533437.
Place: Surampalem
Date:

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Internal Examiner

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[Signature]
External Examiner

BP 507 P. PHARMACOLOGY-II (Practical)

4Hrs/Week

1. Introduction to *in-vitro* pharmacology and physiological salt solutions.
2. Effect of drugs on isolated frog heart.
3. Effect of drugs on blood pressure and heart rate of dog.
4. Study of diuretic activity of drugs using rats/mice.
5. DRC of acetylcholine using frog rectus abdominis muscle.
6. Effect of physostigmine and atropine on DRC of acetylcholine using frog rectus abdominis muscle and rat ileum respectively.
7. Bioassay of histamine using guinea pig ileum by matching method.
8. Bioassay of oxytocin using rat uterine horn by interpolation method.
9. Bioassay of serotonin using rat fundus strip by three point bioassay.
10. Bioassay of acetylcholine using rat ileum/colon by four point bioassay.
11. Determination of PA_2 value of prazosin using rat anococcygeus muscle (by Schild's plot method).
12. Determination of PD_2 value using guinea pig ileum.
13. Effect of spasmogens and spasmolytics using rabbit jejunum.
14. Anti-inflammatory activity of drugs using carrageenan induced paw-edema model.
15. Analgesic activity of drug using central and peripheral methods

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill.
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins.
5. Mycek M.J., Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology.
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert.
9. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
10. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.




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**PRELIMINARY PHYTOCHEMICAL SCREENING AND ANTI
INFLAMMATORY ACTIVITY OF EUGENIA JAMBOLANA
SEEDS EXTRACT IN ALBINO RATS**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

S.PUSHPA	203H1R0047
T.LAKSHMI LALITHYA	203H1R0048
T.LIKITHA RAJA SRI	203H1R0049
T.KEERTHANA	203H1R0050
V.ROSHITHA	203H1R0051

Under the Guidance of

Ms.K.GNANESWARI M.Pharm



DEPARTMENT OF PHARMACOLOGY

ADITYA COLLEGE OF PHARMACY

SURAMPALAM-533437

2023-2024

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**Aditya College of Pharmacy
SURAMPALAM- 533 437**



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CERTIFICATE

This is to certify that the investigation described in this thesis entitled "*Preliminary phytochemical screening and Anti-inflammatory activity of Eugenia jambolana seeds extract in albino rats*" was submitted by S. PUSHPA (203HTR0047), T. LAKSHMI LALITHA (203HTR0048), T. JYOTHA RAJA SRI (203HTR0049), T. KERTHANA (203HTR0050), H. SHITHA (203HTR0051) of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of Degree of Bachelor of Pharmacy in the Department of Pharmacology. The Report included in this thesis was carried out under the Guidance of M. K. GNANESWARI, M.Pharm Assistant Professor of Aditya College of Pharmacy, Surampalem.

Principal,

Dr. K. Ravi Shankar M.Pharm, Ph.D.

Aditya College of Pharmacy

Surampalem-533437

Dist: East Godavari (A.P)

Place: Surampalem

Date:

Internal Examiner



External Examiner

Principal
Aditya College of Pharmacy
SURAMPALAM-533437

ADB Road, Surampalem-533437, Near Kakinada, E.G.D., A.P.

BP103T. PHARMACEUTICS- I (Theory)

45 Hours

Scope: This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.

Objectives: Upon completion of this course the student should be able to:

- Know the history of profession of pharmacy
- Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
- Understand the professional way of handling the prescription
- Preparation of various conventional dosage forms

Course Content:

UNIT – I

10 Hours

- **Historical background and development of profession of pharmacy:** History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia.
- **Dosage forms:** Introduction to dosage forms, classification and definitions
- **Prescription:** Definition, Parts of prescription, handling of Prescription and Errors in prescription.
- **Posology:** Definition, Factors affecting posology. Pediatric dose calculations based on age, body weight and body surface area.

UNIT – II

10 Hours

- **Pharmaceutical calculations:** Weights and measures – Imperial & Metric system, Calculations involving percentage solutions, alligation, proof spirit and isotonic solutions based on freezing point and molecular weight.
- **Powders:** Definition, classification, advantages and disadvantages, Simple & compound powders – official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures, Geometric dilutions.
- **Liquid dosage forms:** Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques



UNIT – III

08 Hours

- **Monophasic liquids:** Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions.
- **Biphasic liquids:**
- **Suspensions:** Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome.
- **Emulsions:** Definition, classification, emulsifying agent, test for the identification of type of Emulsion, Methods of preparation & stability problems and methods to overcome.

UNIT – IV

08 Hours

- **Suppositories:** Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories.
- **Pharmaceutical incompatibilities:** Definition, classification, physical, chemical and therapeutic incompatibilities with examples.

UNIT – V

07 Hours

- **Semisolid dosage forms:** Definitions, classification, mechanisms and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosage forms




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**"FORMULATION AND EVALUATION OF POSACONAZOLE
EMULGELS USING BOX BEHNKEN DESIGN"**

*Dissertation submitted to
Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of
the requirements for the degree of Bachelor of Pharmacy*



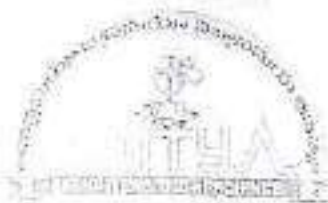
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NITHYAN KAVYA KUMARI (203H1R0054)
VISHU ANANDKUMAR (203H1R0055)

UNDER THE GUIDANCE OF

Seralha Prabha Nathaniel Kumar, M. Pharm.
Assoc. Professor.



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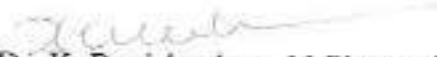
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CERTIFICATE

This is to certify that the dissertation entitled "FORMULATION AND EVALUATION OF POSACONAZOLE EMULGELS USING BOX BEHNKEN DESIGN" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the requirements for the award of the degree of Bachelor of pharmacy is a record of original research work carried out by VALLURI SUREKHA (203H1R0052), VEDI SRUJALA (203H1R0053), VEDI VEERA KUMARI (203H1R0054), VIPPARTHI ANIL KUMAR (203H1R0055). They have done this research work under the supervision of Mr. Sarella Prakash Nathaniel Kumar, M. Pharm and it has not been previously submitted to any other university or academic institution for any higher degree.


Dr. K. Ravishankar, M.Pharm, Ph.D

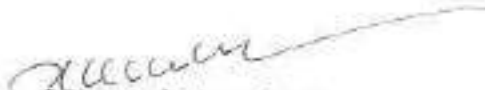
Principal and Professor,

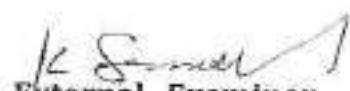
Aditya College of Pharmacy,

Surampalem- 533437.

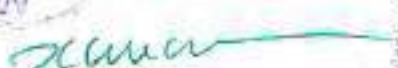
Place: Surampalem

Date:


Internal Examiner


External Examiner




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BP501T. MEDICINAL CHEMISTRY – II (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. The subject emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. The syllabus also emphasizes on chemical synthesis of important drugs under each class.

Objectives: Upon completion of the course the student shall be able to

1. Understand the chemistry of drugs with respect to their pharmacological activity
2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs
3. Know the Structural Activity Relationship of different class of drugs
4. Study the chemical synthesis of selected drugs

Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs superscripted (*)

UNIT- I

10 Hours

Antihistaminic agents: Histamine, receptors and their distribution in the human body

H₁-antagonists: Diphenhydramine hydrochloride*, Dimenhydrinate, Doxylamines succinate, Clemastine fumarate, Diphenylpyraline hydrochloride, Triphenamine hydrochloride, Chlorcyclizine hydrochloride, Meclizine hydrochloride, Buclizine hydrochloride, Chlorpheniramine maleate, Triprolidine hydrochloride*, Phenidamine tartarate, Promethazine hydrochloride*, Trimeprazine tartrate, Cyproheptadine hydrochloride, Azatidine maleate, Astemizole, Loratadine, Cetirizine, Levocetrazine Cromolyn sodium

H₂-antagonists: Cimetidine*, Famotidine, Ranitidin.

Gastric Proton pump inhibitors: Omeprazole, Lansoprazole, Rabeprazole, Pantoprazole

Anti-neoplastic agents:

Alkylating agents: Meclorethamine*, Cyclophosphamide, Melphalan,



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Chlorambucil, Busulfan, Thiotepe

Antimetabolites: Mercaptopurine*, Thioguanine, Fluorouracil, Floxuridine, Cytarabine, Methotrexate*, Azathioprine

Antibiotics: Dactinomycin, Daunorubicin, Doxorubicin, Bleomycin

Plant products: Etoposide, Vinblastin sulphate, Vincristin sulphate

Miscellaneous: Cisplatin, Mitotane.

UNIT – II

10 Hours

Anti-anginal:

Vasodilators: Amyl nitrite, Nitroglycerin*, Pentaerythritol tetranitrate, Isosorbide dinitrate*, Dipyridamole.

Calcium channel blockers: Verapamil, Bepridil hydrochloride, Diltiazem hydrochloride, Nifedipine, Amlodipine, Felodipine, Nicardipine, Nimodipine.

Diuretics:

Carbonic anhydrase inhibitors: Acetazolamide*, Methazolamide, Dichlorphenamide.

Thiazides: ⁻ Chlorthiazide*, Hydrochlorothiazide, Hydroflumethiazide, Cyclothiazide,

Loop diuretics: Furosemide*, Bumetanide, Ethacrynic acid.

Potassium sparing Diuretics: Spironolactone, Triamterene, Amiloride.

Osmotic Diuretics: Mannitol

Anti-hypertensive Agents: Timolol, Captopril, Lisinopril, Enalapril, Benazepril hydrochloride, Quinapril hydrochloride, Methyldopate hydrochloride,* Clonidine hydrochloride, Guanethidine monosulphate, Guanabenz acetate, Sodium nitroprusside, Diazoxide, Minoxidil, Reserpine, Hydralazine hydrochloride.

UNIT- III

10 Hours

Anti-arrhythmic Drugs: Quinidine sulphate, Procainamide hydrochloride, Disopyramide phosphate*, Phenytoin sodium, Lidocaine hydrochloride, Tocainide hydrochloride, Mexiletine hydrochloride, Lorcaïnide hydrochloride, Amiodarone, Sotalol.

Anti-hyperlipidemic agents: Clofibrate, Lovastatin, Cholestamine and Cholestipol

Coagulant & Anticoagulants: Menadione, Acetomenadione, Warfarin*, Anisindione, clopidogrel

Drugs used in Congestive Heart Failure: Digoxin, Digitoxin, Nesiritide, Bosentan, Tezosentan.



UNIT- IV

08 Hours

Drugs acting on Endocrine system

Nomenclature, Stereochemistry and metabolism of steroids

Sex hormones: Testosterone, Nandrolone, Progesterones, Oestriol, Oestradiol, Oestrone, Diethyl stilbestrol.

Drugs for erectile dysfunction: Sildenafil, Tadalafil.

Oral contraceptives: Mifepristone, Norgestrel, Levonorgestrol

Corticosteroids: Cortisone, Hydrocortisone, Prednisolone, Betamethasone, Dexamethasone

Thyroid and antithyroid drugs: L-Thyroxine, L-Thyronine, Propylthiouracil, Methimazole.

UNIT – V

07 Hours

Antidiabetic agents:

Insulin and its preparations

Sulfonyl ureas: Tolbutamide*, Chlorpropamide, Glipizide, Glimepiride.

Biguanides: Metformin.

Thiazolidinediones: Pioglitazone, Rosiglitazone.

Meglitinides: Repaglinide, Nateglinide.

Glucosidase inhibitors: Acarbose, Voglibose.

Local Anesthetics: SAR of Local anesthetics

Benzoic Acid derivatives: Cocaine, Hexylcaine, Mepylcaine, Cyclomethycaine, Piperocaine.

Amino Benzoic acid derivatives: Benzocaine*, Butamben, Procaine*, Butacaine, Propoxycaine, Tetracaine, Benoxinate.

Lidocaine/Anilide derivatives: Lignocaine, Mepivacaine, Prilocaine, Etidocaine.

Miscellaneous: Phenacaine, Dipeperon, Dibucaine.*

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV.
4. Introduction to principles of drug design- Smith and Williams.
5. Remington's Pharmaceutical Sciences.
6. Martindale's extra pharmacopoeia.
7. Organic Chemistry by I.L. Finar, Vol. II.
8. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. I to 5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry- A.I.Vogel.



Drug utilization evaluation along with medication
adherence on **salt-asthmatic drugs**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

Y. PRASANTHI (203H1R0056)
ABHISHEK PAUL (203H1R0057)
AJAY K.K. (203H1R0058)
A. SUJATHA (203H1R0059)
ARITRO PAUL (203H1R0060)

Dr. DIVYA S. NAIR, Pharm D
Assistant Professor



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SURAMPALEM- 533 437

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CERTIFICATE

This is to certify that the investigation described in this thesis entitled "DRUG UTILIZATION EVALUATION ALONG WITH MEDICATION ADHERENCE ON ANTI ASTHMATIC DRUGS" was submitted by Y. PRASANTHI (Regd. No.203H1R0056), ABHISHEK PAUL (203H1R0057), AJAY.K. K(203H1R0058), A.SUJHATHA(203H1R0059), ARITRO PAUL (203H1R0060) students of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of a Degree of Bachelor of Pharmacy in the Department of Pharmacy Practice. The Report embedded in this thesis was carried out under the Guidance of Dr. Divya S. Nair, PharmD, Assistant professor of Aditya College of Pharmacy, Surampalem.

Principal,

Dr. K. Ravi Shankar M.Pharm, PhD,
Aditya College of Pharmacy,
Surampalem - 533437
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BP 404 T. PHARMACOLOGY-I (Theory)

45 Hrs

Scope: The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs like, mechanism of action, physiological and biochemical effects (pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.

Objectives: Upon completion of this course the student should be able to

1. Understand the pharmacological actions of different categories of drugs
2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
4. Observe the effect of drugs on animals by simulated experiments
5. Appreciate correlation of pharmacology with other bio medical sciences

Course Content:

UNIT-I

08 hours

1. General Pharmacology

- a. Introduction to Pharmacology- Definition, historical landmarks and scope of pharmacology, nature and source of drugs, essential drugs concept and routes of drug administration, Agonists, antagonists(competitive and non competitive), spare receptors, addiction, tolerance, dependence, tachyphylaxis, idiosyncrasy, allergy.
- b. Pharmacokinetics- Membrane transport, absorption, distribution, metabolism and excretion of drugs .Enzyme induction, enzyme inhibition, kinetics of elimination

UNIT-II

12 Hours

General Pharmacology

- a. Pharmacodynamics- Principles and mechanisms of drug action. Receptor theories and classification of receptors, regulation of receptors. drug receptors interactions signal transduction mechanisms, G-protein-coupled receptors, ion channel receptor, transmembrane enzyme linked receptors, transmembrane JAK-STAT binding receptor and receptors that regulate transcription factors, dose response relationship, therapeutic index, combined effects of drugs and factors modifying drug action.
- b. Adverse drug reactions.
- c. Drug interactions (pharmacokinetic and pharmacodynamic)
- d. Drug discovery and clinical evaluation of new drugs -Drug discovery phase, preclinical evaluation phase, clinical trial phase, phases of clinical trials and pharmacovigilance.




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UNIT-III

10 Hours

2. Pharmacology of drugs acting on peripheral nervous system

- a. Organization and function of ANS.
- b. Neurohumoral transmission, co-transmission and classification of neurotransmitters.
- c. Parasympathomimetics, Parasympatholytics, Sympathomimetics, sympatholytics.
- d. Neuromuscular blocking agents and skeletal muscle relaxants (peripheral).
- e. Local anesthetic agents.
- f. Drugs used in myasthenia gravis and glaucoma

UNIT-IV

08 Hours

3. Pharmacology of drugs acting on central nervous system

- a. Neurohumoral transmission in the C.N.S. special emphasis on importance of various neurotransmitters like with GABA, Glutamate, Glycine, serotonin, dopamine.
- b. General anesthetics and pre-anesthetics.
- c. Sedatives, hypnotics and centrally acting muscle relaxants.
- d. Anti-epileptics
- e. Alcohols and disulfiram

UNIT-V

07 Hours

3. Pharmacology of drugs acting on central nervous system

- a. Psychopharmacological agents: Antipsychotics, antidepressants, anti-anxiety agents, anti-manics and hallucinogens.
- b. Drugs used in Parkinsons disease and Alzheimer's disease.
- c. CNS stimulants and nootropics.
- d. Opioid analgesics and antagonists
- e. Drug addiction, drug abuse, tolerance and dependence.




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EVALUATION OF ANALGESIC AND ANTI- INFLAMMATORY
ACTIVITIES OF ETHANOLIC EXTRACT OF COLOCASIA
ESCULENTA AND HYLOCEREUS UNDATUS

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

ASHOK KUMAR BARUN DHOBI	(203H1R0062)
ATTULURI SAI JAHNAVI	(203H1R0063)
BHUPENDRA PRASAD KURMI	(203H1R0064)
BODDU S L V SAI VASANTH	(203H1R0065)

Under the Guidance of

AKSHINTALA SREE GAYATRI



ADITYA COLLEGE OF PHARMACY (AUTONOMOUS)
SURAMPalem-533437
2023-2024

Principa
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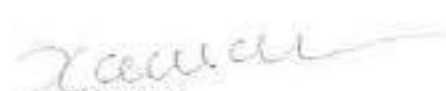
COLLEGE OF PHARMACY

Approved by AICTE & PCI - NEW DELHI, Affiliated to JNTUK KAKINADA
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Email: office@acop.edu.in
Website: www.acop.edu.in

CERTIFICATE

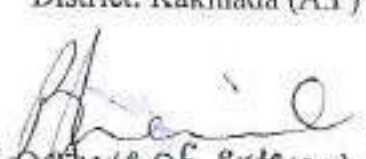
This is to certify the investigation described in this thesis entitled "Evaluation of Analgesic and Anti-inflammatory Activities of Ethanolic extract of *Colocasia esculenta* and *Hylocereus undatus*" was submitted by ASHOK KUMAR BAHUN DHODI (203HHR0062), ATTULURI SAI JAHNAVI (203HHR0063), BHUPENDRA PRASAD KURMI (203HHR0064), DODDU S L V SAI VASANTH (203HHR0065) student of Aditya College of pharmacy (Autonomous) for the partial fulfillment of Bachelor of pharmacy in the Department of Pharmaceutical Chemistry. The report embedded in this thesis was carried out under the Guidance of AKSHINTALA SREE GAYATRI Aditya College of Pharmacy, Surampalem.


Principal,

Dr. K. Ravi Shankar
M-Pharm, Ph.D
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Surampalem-533437
District: Kakinada (A.P)




Internal Examiner


Signature of external Examiner

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BP 403 T. PHYSICAL PHARMACEUTICS-II (Theory)

45Hours

Scope: The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.

Objectives: Upon the completion of the course student shall be able to

1. Understand various physicochemical properties of drug molecules in the designing the dosage forms
2. Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.

Course Content:

UNIT-I

07 Hours

Colloidal dispersions: Classification of dispersed systems & their general characteristics, size & shapes of colloidal particles, classification of colloids & comparative account of their general properties. Optical, kinetic & electrical properties. Effect of electrolytes, coacervation, peptization & protective action.

UNIT-II

10 Hours

Rheology: Newtonian systems, law of flow, kinematic viscosity, effect of temperature, non-Newtonian systems; pseudoplastic, dilatant, plastic, thixotropy, thixotropy in formulation, determination of viscosity, capillary, falling Sphere, rotational viscometers

Deformation of solids: Plastic and elastic deformation, Heckel equation, Stress, Strain, Elastic Modulus

UNIT-III

10 Hours

Coarse dispersion: Suspension, interfacial properties of suspended particles, settling in suspensions, formulation of flocculated and deflocculated suspensions. Emulsions and theories of emulsification, microemulsion and multiple emulsions; Stability of emulsions, preservation of emulsions, rheological properties of emulsions and emulsion formulation by HLB method.



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UNIT-IV

10Hours

Micromeretics: Particle size and distribution, mean particle size, number and weight distribution, particle number, methods for determining particle size by different methods, counting and separation method, particle shape, specific surface, methods for determining surface area, permeability, adsorption, derived properties of powders, porosity, packing arrangement, densities, bulkiness & flow properties.

UNIT-V

10 Hours

Drug stability: Reaction kinetics: zero, pseudo-zero, first & second order, units of basic rate constants, determination of reaction order. Physical and chemical factors influencing the chemical degradation of pharmaceutical product: temperature, solvent, ionic strength, dielectric constant, specific & general acid base catalysis, Simple numerical problems. Stabilization of medicinal agents against common reactions like hydrolysis & oxidation. Accelerated stability testing in expiration dating of pharmaceutical dosage forms. Photolytic degradation and its prevention




PRINCIPAL

**FORMULATION AND EVALUATION OF HERBAL BURNS CREAM
CONTAINING *MANGIFERA INDICA***

Dissertation submitted to

*Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of
the requirements for the degree of Bachelor of Pharmacy*



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA
BACHELOR OF PHARMACY

Submitted by

DIVESH SINGH (203H1R0066)

GOLDEN GUPTA (203H1R0067)

GYANSAGAR CHAUDHARY (203H1R0068)

KAKHILA (203H1R0069)

K.SHYAM SANDEEP REDDY (203H1R0070)

Under the guidance of

Mrs.S. AMALA, M.Pharm,



ADITYA COLLEGE OF PHARMACY

SURAMPalem - 533437

2023-2024

Amala
PRINCIPAL
Aditya College of Pharmacy
SURAMPalem- 533 437



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COLLEGE OF PHARMACY

Approved by AICTE & PCI - NEW DELHI. Affiliated to JNTUK Kakinada.

Recognized by Council of Technical Education, Government of Andhra Pradesh.

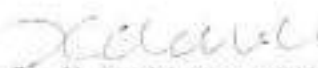
Ph: 99498 76664
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CERTIFICATE

This is to certify that the dissertation entitled "FORMULATION AND EVALUATION OF HERBAL BURNS CREAM CONTAINING *MANGIFERA INDICA*" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the requirements for the award of the degree of Bachelor of pharmacy is a record of original research work carried out by DIVESH SINGH (203HIR0066), GOLDEN GUPTA (203HIR0067), GYANSAGAR CHAUDHARY (203HIR0068), KAKHILA (203HIR0069), KUNYAM SANDEEP REDDY (203HIR0070). They have done this research work under the supervision of Mrs.S.Amala, M. Pharm, and it has not been previously submitted to any other university or academic institution for any higher degree.

Place: Surampalem

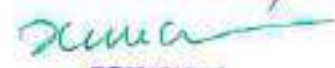
Date: 28/4/2024


Dr. K. Ravishankar, M. Pharm, Ph.D
Principal and professor
Aditya College of Pharmacy
Surampalem - 533437


EXTERNAL EXAMINER




EXTERNAL EXAMINER


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BP705P. INSTRUMENTAL METHODS OF ANALYSIS (Practical)

4 Hours/Week

- 1 Determination of absorption maxima and effect of solvents on absorption maxima of organic compounds
- 2 Estimation of dextrose by colorimetry
- 3 Estimation of sulfanilamide by colorimetry
- 4 Simultaneous estimation of ibuprofen and paracetamol by UV spectroscopy
- 5 Assay of paracetamol by UV-Spectrophotometry
- 6 Estimation of quinine sulfate by fluorimetry
- 7 Study of quenching of fluorescence
- 8 Determination of sodium by flame photometry
- 9 Determination of potassium by flame photometry
- 10 Determination of chlorides and sulphates by nephelo turbidometry
- 11 Separation of amino acids by paper chromatography
- 12 Separation of sugars by thin layer chromatography
- 13 Separation of plant pigments by column chromatography
- 14 Demonstration experiment on HPLC
- 15 Demonstration experiment on Gas Chromatography

Recommended Books (Latest Editions)

1. Instrumental Methods of Chemical Analysis by B.K Sharma
2. Organic spectroscopy by Y.R Sharma
3. Text book of Pharmaceutical Analysis by Kenneth A. Connors
4. Vogel's Text book of Quantitative Chemical Analysis by A.L Vogel
5. Practical Pharmaceutical Chemistry by A.H. Beckett and J.B. Stenlake
6. Organic Chemistry by I L. Finar
7. Organic spectroscopy by William Kemp
8. Quantitative Analysis of Drugs by D. C. Garrett
9. Quantitative Analysis of Drugs in Pharmaceutical Formulations by P. D. Sethi
10. Spectrophotometric identification of Organic Compounds by Silverstein




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SURAMPALAM-533 447

PHARMACOGNOSTIC EVALUATION OF *COUROUPITA*
GUIANENSIS AND **SCREENING OF ANTI INFLAMMATORY**
ACTIVITY OF LEAF EXTRACT

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

K. M.K.S. SRIRAM
K. DIVYA
K. CHAKRADHAR
M.VIVEK CHOWDARY
M. RUPIKA REDDY

(REGD.NO: 203H1R0071)
(REGD.NO: 203H1R0072)
(REGD.NO: 203H1R0073)
(REGD.NO: 203H1R0074)
(REGD.NO: 203H1R0076)

Under the Guidance of

Dr. N. DIVYA, M.Ph, Ph.D.
Associate Professor,



ADITYA COLLEGE OF PHARMACY

SURAMPalem-533437
MARCH-2024

Principal
Principal
Aditya College of Pharmacy
SURAMPalem-533437



ADITYA

COLLEGE OF PHARMACY

Approved by AICTE, New Delhi. Affiliated to JNTU Kakinada.
(Recognized under the AICTE Model Curriculum of Pharmacy Education & Research)

Ph: 99498 76664
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Website: www.acp.edu.in

CERTIFICATE

This is to certify that the dissertation work entitled "PHARMACOGNOSTIC EVALUATION OF *COUROUPITA GUIANENSIS* AND SCREENING OF ANTI INFLAMMATORY ACTIVITY OF LEAF EXTRACT" submitted to JNTU Kakinada in partial fulfillment for award of degree of bachelor of pharmacy. This is a bonafied work carried out by K.M.K.S. SRIRAM (REGD.NO:203H1R0071), K.DIVYA (REGD.NO: 203H1R0072), K.HAKRADHAR (REGD.NO:203H1R0073), M.VIVEK CHOWDARY (REGD.NO:203H1R0074), M.RUPIKA REDDY (REGD.NO:203H1R0076) under the guidance and supervision of Dr. DIVYA NARLA, MPh, PhD., Associate Professor, Department of Pharmaceutical Analysis.

Principal,

Dr.K. Ravi Shankar M.Pharm,Ph.D,
Aditya College of Pharmacy,
Surampalem - 533437.

Signature

Internal Examiner:

Signature of External Examiner:



Aditya College of Pharmacy
SURAMPALEM - 533 437

Aditya

1 Road, Surampalem-533 437, Near Kakinada, E.G.D.L.A.P.

BP 502 T, Industrial PharmacyI (Theory)

45 Hours

Scope: Course enables the student to understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product.

Objectives: Upon completion of the course the student shall be able to

1. Know the various pharmaceutical dosage forms and their manufacturing techniques.
2. Know various considerations in development of pharmaceutical dosage forms
3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality

Course content:

3 hours/ week

UNIT-I

07 Hours

Preformulation Studies: Introduction to preformulation, goals and objectives, study of physicochemical characteristics of drug substances.

a. Physical properties: Physical form (crystal & amorphous), particle size, shape, flow properties, solubility profile (pKa, pH, partition coefficient), polymorphism

b. Chemical Properties: Hydrolysis, oxidation, reduction, racemisation, polymerization

BCS classification of drugs & its significant

Application of preformulation considerations in the development of solid, liquid oral and parenteral dosage forms and its impact on stability of dosage forms.

UNIT-II

10 Hours

Tablets:

- a. Introduction, ideal characteristics of tablets, classification of tablets. Excipients, Formulation of tablets, granulation methods, compression and processing problems. Equipments and tablet tooling.
- b. Tablet coating: Types of coating, coating materials, formulation of coating composition, methods of coating, equipment employed and defects in coating.
- c. Quality control tests: In process and finished product tests

Liquid orals: Formulation and manufacturing consideration of syrups and elixirs suspensions and emulsions; Filling and packaging; evaluation of liquid orals official in pharmacopoeia



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UNIT-III

08 Hours

Capsules:

- a. **Hard gelatin capsules:** Introduction, Production of hard gelatin capsule shells, size of capsules, Filling, finishing and special techniques of formulation of hard gelatin capsules, manufacturing defects. In process and final product quality control tests for capsules.
- b. **Soft gelatin capsules:** Nature of shell and capsule content, size of capsules, importance of base adsorption and minim/gram factors, production, in process and final product quality control tests, Packing, storage and stability testing of soft gelatin capsules and their applications.

Pellets: Introduction, formulation requirements, pelletization process, equipments for manufacture of pellets

UNIT-IV

10 Hours

Parenteral Products:

- a. Definition, types, advantages and limitations. Preformulation factors and essential requirements, vehicles, additives, importance of isotonicity
- b. Production procedure, production facilities and controls, aseptic processing
- c. Formulation of injections, sterile powders, large volume parenterals and lyophilized products.
- d. Containers and closures selection, filling and sealing of ampoules, vials and infusion fluids. Quality control tests of parenteral products.

Ophthalmic Preparations: Introduction, formulation considerations; formulation of eye drops, eye ointments and eye lotions; methods of preparation; labeling, containers; evaluation of ophthalmic preparations

UNIT-V

10 Hours

Cosmetics: Formulation and preparation of the following cosmetic preparations: lipsticks, shampoos, cold cream and vanishing cream, tooth pastes, hair dyes and sunscreens.

Pharmaceutical Aerosols: Definition, propellants, containers, valves, types of aerosol systems; formulation and manufacture of aerosols; Evaluation of aerosols; Quality control and stability studies.

Packaging Materials Science: Materials used for packaging of pharmaceutical products, factors influencing choice of containers, legal and official requirements for containers, stability aspects of packaging materials, quality control tests.



**FORMULATION AND EVALUATION OF FAST
DISSOLVING ORAL THIN FILMS OF EMPAGLIFLOZIN**

Dissertation submitted to

*Jawaharlal Nehru Technological University, Kakinada in partial
fulfillment of the requirements for the degree of Bachelor of Pharmacy*



JAWAHARLAL NEHRU TECHNOLOGICAL
UNIVERSITY, KAKINADA

Submitted By

MANAUWAR ALAM	(203H1R0077)
M. VINAY KUMAR CHOWDARY	(203H1R0078)
M. MONA SRI NEHA	(203H1R0079)
M. SESA SAILAJA	(203H1R0081)
N.N. DURGA PRASAD	(203H1R0082)

Under the Guidance of

B. HEMALAKSHMI, M. Pharm



ADITYA COLLEGE OF PHARMACY
SURAMPALAM - 533437

2020-2021

Signature
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CERTIFICATE

This is to certify that the dissertation entitled "FORMULATION AND EVALUATION OF FAST DISSOLVING ORAL THIN FILMS OF EMPAGLIFLOZIN" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfilment of the requirements for the award of the degree of *Bachelor of pharmacy* is a record of original research work carried out by: KANAKA DEVI ALAM (2001H000702), M. VINAY KUMAR (2001H000703), ANSHU KUMAR (2001H000704), A. SETHI SAKSHI (2001H000705), N. DURGA PRASAD (2001H000706). They have done this research work under the supervision of Mrs. B. Hema Kiranmayi, M. Pharm and it has not been previously submitted to any other university or academic institution for any higher degree.

Dr. K. Ravishankar, B Pharm, Ph.D.
Principal and Professor,
Aditya College of Pharmacy,
Surampalem- 533437.

Place: Surampalem

DATE:

INTERNAL EXAMINER



Hemal
PRINCIPAL
Aditya College of Pharmacy
SURAMPALAM- 533 437

EXTERNAL EXAMINER

BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)

45 Hours

Scope: This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India.

Objectives: Upon completion of the course, the student shall be able to understand:

1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
2. Various Indian pharmaceutical Acts and Laws
3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
4. The code of ethics during the pharmaceutical practice

Course Content:

UNIT-I

10 Hours

Drugs and Cosmetics Act, 1940 and its rules 1945:

Objectives, Definitions, Legal definitions of schedules to the Act and Rules

Import of drugs – Classes of drugs and cosmetics prohibited from import, Import under license or permit. Offences and penalties.

Manufacture of drugs – Prohibition of manufacture and sale of certain drugs,

Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug, loan license and repacking license.

UNIT-II

10 Hours

Drugs and Cosmetics Act, 1940 and its rules 1945.

Detailed study of Schedule G, H, M, N, P,T,U, V, X, Y, Part XII B, Sch F & DMR (OA)

Sale of Drugs – Wholesale, Retail sale and Restricted license. Offences and penalties

Labeling & Packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics, List of permitted colors. Offences and penalties.

Administration of the Act and Rules – Drugs Technical Advisory Board, Central drugs Laboratory, Drugs Consultative Committee, Government drug analysts, Licensing authorities, controlling authorities, Drugs Inspectors

UNIT-III

10 Hours

- **Pharmacy Act –1948:** Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils; constitution and functions, Registration of Pharmacists, Offences and




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Penalties

- **Medicinal and Toilet Preparation Act –1955:** Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations, Offences and Penalties.
- **Narcotic Drugs and Psychotropic substances Act-1985 and Rules:** Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties

UNIT-IV

08 Hours

- **Study of Salient Features of Drugs and Magic Remedies Act and its rules:** Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties
- **Prevention of Cruelty to animals Act-1960:** Objectives, Definitions, Institutional Animal Ethics Committee, CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments, Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties.
- **National Pharmaceutical Pricing Authority:** Drugs Price Control Order (DPCO)-2013, Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, National List of Essential Medicines (NLEM)

UNIT-V

07 Hours

- **Pharmaceutical Legislations** – A brief review, Introduction, Study of drugs enquiry committee, Health survey and development committee, Hathi committee and Mudaliar committee
- **Code of Pharmaceutical ethics** Definition, Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath
- **Medical Termination of Pregnancy Act**
- **Right to Information Act**
- **Introduction to Intellectual Property Rights (IPR)**

Recommended books: (Latest Edition)

1. Forensic Pharmacy by B. Suresh



2. Text book of Forensic Pharmacy by B.M. Mithal
3. Hand book of drug law-by M.L. Mehra
4. A text book of Forensic Pharmacy by N.K. Jain
5. Drugs and Cosmetics Act/Rules by Govt. of India publications.
6. Medicinal and Toilet preparations act 1955 by Govt. of India publications.
7. Narcotic drugs and psychotropic substances act by Govt. of India publications
8. Drugs and Magic Remedies act by Govt. of India publication
9. Bare Acts of the said laws published by Government. Reference books (Theory)



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**FORMULATION AND EVALUATION OF LEVETIRACETAM
IMMEDIATE RELEASE TABLETS USING NATURAL SUPER
DISINTEGRANTS ENTITLED AS ANTI-EPILEPTIC**

*Dissertation submitted to
Jawaharlal Nehru Technological University, Kakinada in partial fulfillment
of the requirements for the degree of Bachelor of Pharmacy*



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA

Submitted By

O. KAVYA (203H1R0083)
P. LIKHITHA (203H1R0084)
P. ROHITH (203H1R0087)
M. PRIYANKA (203H1R0088)
P. SOWJANYA (203H1R0089)

**Under the Guidance of
P. PRASANTHI, M. Pharm [PH. D]**



**ADITYA COLLEGE OF PHARMACY
SURAMPalem - 533437
2020 - 2024**



**PRINCIPAL
Aditya College of Pharmacy
SURAMPalem- 533 437**

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COLLEGE OF PHARMACY

Approved by AICTE, India. NEW DELHI. Affiliated to JYOTI KARNATAKA
University, Kuvempu, Shimoga. Co-located with Jyoti Engineering College, Shimoga.

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Email: office@adityacollege.edu.in
Website: www.adityacollege.edu.in

CERTIFICATE

This is to certify that the dissertation entitled "FORMULATION AND EVALUATION OF LEVETIRACETAM IMMEDIATE RELEASE TABLETS BY USING NATURAL SUPER DISINTEGRANTS ENTITLED AS ANTI-EPILEPTIC" was submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment of the requirements for the award of the degree of *Bachelor of pharmacy* is a record of original research work carried out by O. KAVYA (203H1R0083), P. LIKHITHA (203H1R0084), P. ROHITH (203H1R0087), M. PRIYANKA (203H1R0088), P. SOWJANYA (203H1R0089). They have done this research work under the supervision of Mrs. P. PRASANTHI, M. Pharm [PH. D] and it has not been previously submitted to any other university or academic institution for any higher degree.

Dr. K. Ravishankar, B Pharm, Ph.D.
Principal and Professor,
Aditya College of Pharmacy,
Surampalem- 533437.

Place: Surampalem

DATE:

1. INTERNAL EXAMINER

EXTERNAL EXAMINER



Principal
Aditya College of Pharmacy
SURAMPALEM- 533 437

BP606TPHARMACEUTICAL QUALITY ASSURANCE (Theory)

45 Hours

Scope: This course deals with the various aspects of quality control and quality assurance aspects of pharmaceutical industries. It deals with the important aspects like cGMP, QC tests, documentation, quality certifications and regulatory affairs.

Objectives: Upon completion of the course student shall be able to:

- understand the cGMP aspects in a pharmaceutical industry
- appreciate the importance of documentation
- understand the scope of quality certifications applicable to pharmaceutical industries
- understand the responsibilities of QA & QC departments

Course content:

UNIT – I

10 Hours

Quality Assurance and Quality Management concepts: Definition and concept of Quality control, Quality assurance and GMP

Total Quality Management (TQM): Definition, elements, philosophies

ICH Guidelines: purpose, participants, process of harmonization, Brief overview of QSEM, with special emphasis on Q-series guidelines, ICH stability testing guidelines

Quality by design (QbD): Definition, overview, elements of QbD program, tools

ISO 9000 & ISO14000: Overview, Benefits, Elements, steps for registration

NABL accreditation : Principles and procedures

UNIT - II

10 Hours

Organization and personnel: Personnel responsibilities, training, hygiene and personal records.

Premises: Design, construction and plant layout, maintenance, sanitation, environmental control, utilities and maintenance of sterile areas, control of contamination.

Equipments and raw materials: Equipment selection, purchase specifications, maintenance, purchase specifications and maintenance of stores for raw materials.

UNIT – III

10 Hours

Quality Control: Quality control test for containers, rubber closures and secondary packing



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materials.

Good Laboratory Practices: General Provisions, Organization and Personnel, Facilities, Equipment, Testing Facilities Operation, Test and Control Articles, Protocol for Conduct of a Nonclinical Laboratory Study, Records and Reports, Disqualification of Testing Facilities

UNIT – IV

08 Hours

Complaints: Complaints and evaluation of complaints, Handling of return good, recalling and waste disposal.

Document maintenance in pharmaceutical industry: Batch Formula Record, Master Formula Record, SOP, Quality audit, Quality Review and Quality documentation, Reports and documents, distribution records.

UNIT – V

07 Hours

Calibration and Validation: Introduction, definition and general principles of calibration, qualification and validation, importance and scope of validation, types of validation, validation master plan. Calibration of pH meter, Qualification of UV-Visible spectrophotometer, General principles of Analytical method Validation.

Warehousing: Good warehousing practice, materials management

Recommended Books: (Latest Edition)

1. Quality Assurance Guide by organization of Pharmaceutical Products of India.
2. Good Laboratory Practice Regulations, 2nd Edition, Sandy Weinberg Vol. 69.
3. Quality Assurance of Pharmaceuticals- A compendium of Guide lines and Related materials Vol I WHO Publications.
4. A guide to Total Quality Management- Kushik Maitra and Sedhan K Ghosh
5. How to Practice GMP's – P P Sharma.
6. ISO 9000 and Total Quality Management – Sadhank G Ghosh
7. The International Pharmacopoeia – Vol I, II, III, IV- General Methods of Analysis and Quality specification for Pharmaceutical Substances, Excipients and Dosage forms
8. Good laboratory Practices – Marcel Dekker Series.
9. ICH guidelines, ISO 9000 and 14000 guidelines



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SURAMPALAM-522 411

**EVALUATION OF KERATOLYTIC ACTIVITY USING
ETHANOLIC EXTRACT OF LEAVES AZADIRACHTA INDICA, ALOE
VERA BARBADENSIS, AND RHIZOMES OF CURCUMA LONGA.**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KADAPPAH



In the partial fulfillment of the requirements for the Award of the degree of

BACHELOR OF PHARMACY

Submitted by

RAYADU ASWITHA (203H1R0090)

V. DIVYA SRIDEVI (203H1R0093)

SALUHU KAUHARAJ (203H1R0095)

Under the Guidance of

Dr. K. Ravi Shankar, M. Pharm, Ph. D.



ADITYA COLLEGE OF PHARMACY
SURAMPALEM-533 437
MARCH-2023-2024

Dr. K. Ravi Shankar
PRINCIPAL
Aditya College of Pharmacy
SURAMPALEM-533 437



ADITYA

COLLEGE OF PHARMACY

Ph. D. Ravi Shankar
Surampalem, AP
Dist: East Godavari (A.P.)

CERTIFICATE

This is to certify that the investigation described in this thesis entitled "Evaluation of Lysolytic Activity of Ethanol Extract of Leaves *Azadirachta indica*, *Morinda Barbadosensis* and Rhizomes of *Cyperus longus*" was submitted by RAYADU JWITHA (203H1R0090) VDIVYA SRIDEVI (203H1R0093) SALUHU KABIRAJ (203H1R0095) of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of Degree of Bachelor of Pharmacy in the Department of Pharmacology. The Report embedded in this thesis is carried out under the Guidance of Dr. K. Ravi Shankar, M. Pharm, Ph. D., Associate Professor Of Aditya College Of Pharmacy, Surampalem.

K. Ravi Shankar

Principal,

Dr. K. Ravi Shankar M. Pharm, Ph.D.

Aditya College of Pharmacy

Surampalem - 533437

Dist: East Godavari (A.P.)

S. S. S. S.
INTERNAL EXAMINER



A. S. S. S.
EXTERNAL EXAMINER

S. S. S. S.
PRINCIPAL
Aditya College of Pharmacy
SURAMPALEM - 533 437

Aditya Nagar, ADB Road, Surampalem

BP 811 ET. ADVANCED INSTRUMENTATION TECHNIQUES

45 Hours

Scope: This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. This subject is designed to impart advanced knowledge on the principles and instrumentation of spectroscopic and chromatographic hyphenated techniques. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.

Objectives: Upon completion of the course the student shall be able to

- understand the advanced instruments used and its applications in drug analysis
- understand the chromatographic separation and analysis of drugs.
- understand the calibration of various analytical instruments
- know analysis of drugs using various analytical instruments.

Course Content:

UNIT-I

10 Hours

Nuclear Magnetic Resonance spectroscopy

Principles of H-NMR and C-NMR, chemical shift, factors affecting chemical shift, coupling constant, Spin - spin coupling, relaxation, instrumentation and applications

Mass Spectrometry- Principles, Fragmentation, Ionization techniques – Electron impact, chemical ionization, MALDI, FAB, Analyzers-Time of flight and Quadrupole, instrumentation, applications

UNIT-II

10 Hours

Thermal Methods of Analysis: Principles, instrumentation and applications of Thermogravimetric Analysis (TGA), Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC)

X-Ray Diffraction Methods: Origin of X-rays, basic aspects of crystals, X-ray

Crystallography, rotating crystal technique, single crystal diffraction, powder diffraction, structural elucidation and applications.

UNIT-III

10 Hours

Calibration and validation-as per ICH and USFDA guidelines

Calibration of following Instruments

Electronic balance, UV-Visible spectrophotometer, IR spectrophotometer,



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Fluorimeter, Flame Photometer, HPLC and GC

UNIT-IV

08 Hours

Radio immune assay:Importance, various components, Principle, different methods, Limitation and Applications of Radio immuno assay

Extraction techniques:General principle and procedure involved in the solid phase extraction and liquid-liquid extraction

UNIT-V

07 Hours

Hyphenated techniques-LC-MS/MS, GC-MS/MS, HPTLC-MS.

Recommended Books (Latest Editions)

1. Instrumental Methods of Chemical Analysis by B.K Sharma
2. Organic spectroscopy by Y.R Sharma
3. Text book of Pharmaceutical Analysis by Kenneth A. Connors
4. Vogel's Text book of Quantitative Chemical Analysis by A.I Vogel
5. Practical Pharmaceutical Chemistry by A.H. Beckett and J.B. Stenlake
6. Organic Chemistry by I. L. Finar
7. Organic spectroscopy by William Kemp
8. Quantitative Analysis of Drugs by D. C. Garrett
9. Quantitative Analysis of Drugs in Pharmaceutical Formulations by P. D. Sethi
10. Spectrophotometric identification of Organic Compounds by Silverstein




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Website: www.aditya.ac.in

CERTIFICATE

This is to certify that the investigation described on this thesis entitled
"DEVELOPMENT AND VALIDATION OF UV SPECTROPHOTOMETRIC METHOD
FOR ESTIMATION OF DARUNAVIR ETHANOLATE IN BULK" is submitted by
Sangeeta Baitalik(203H1R0096), Santosh Das(203H1R0097), Sathi Aditya Vanama Reddy
(203H1R0098), Satti Mariya Rani(203H1R0099) of Aditya College of Pharmacy,
Surampalem, affiliated to JNTU University, Kakinada for the partial fulfillment of Bachelor of
Pharmacy. The report embedded in this thesis was carried out under the guidance of Dr. Divya
Narla, M.Pharm, Ph.D Associate Professor, Aditya College of Pharmacy, Surampalem.

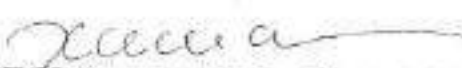

Principal,

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Dist. East Godavari (A.P.)


External Examiner Signature:

Date: 10/09/24




INTERNAL EXAMINER SIGNATURE


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BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)**45Hours**

Scope: The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine

Objectives: Upon completion of the course, the student shall be able

1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents
2. to understand the preparation and development of herbal formulation.
3. to understand the herbal drug interactions
4. to carryout isolation and identification of phytoconstituents

Course Content:**UNIT-I****7 Hours****Metabolic pathways in higher plants and their determination**

- a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway.
- b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT-II**14 Hours**

General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,

Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta

Steroids, Cardiac Glycosides & Triterpenoids: Liquorice, Dioscorea, Digitalis

Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,

Tannins: Catechu, Pterocarpus

Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony

Glycosides: Senna, Aloes, Bitter Almond

Iridoids, Other terpenoids & Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT-III**06 Hours**

Isolation, Identification and Analysis of Phytoconstituents

- a) Terpenoids: Menthol, Citral, Artemisin
- b) Glycosides: Glycyrrhetic acid & Rutin
- c) Alkaloids: Atropine, Quinine, Reserpine, Caffeine
- d) Resins: Podophyllotoxin, Curcumin

UNIT-IV**10 Hours**

Industrial production, estimation and utilization of the following phytoconstituents:

Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine, Taxol, Vincristine and Vinblastine

UNIT V**8 Hours****Basics of Phytochemistry**

Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.



PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-PSYCHOTIC ACTIVITIES OF D-LIMONENE OBTAINED FROM PEELS OF CITRUS LIMETTA

A Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



in the partial fulfillment of the requirements for the

Award of the degree of

BACHELOR OF PHARMACY

Submitted by:

Sudip Hanra	(203H1R00A1)
Sunil Kumar Sah	(203H1R00A3)
Balasadi Jayanthi	(213H5R0001)
Palimpati S.S. Varsha	(213H5R0002)

Under the guidance of

IC. GNANESHWARI, M. Pharm



DEPARTMENT OF PHARMACOLOGY

ADITYA COLLEGE OF PHARMACY

SURAMPALEM-53343

2023-24

[Signature]
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Recognized by the Government of Andhra Pradesh, Government of India

Ph: 99490 76644
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Website: www.aditya.ac.in

CERTIFICATE

This is to certify that the investigation described in this thesis entitled
"PHYTOCHEMICAL SCREENING AND EVALUATION OF
ANTIPSYCHOTIC ACTIVITIES OF D-LIMONENE OBTAINED FROM
PEEL EXTRACTS OF *CITRUS LIMETTA*" was submitted by *Sudip
Hanra(203H1R00A1), Sunil Kumar Sah(203H1R00A3), Balasadi Jayanthi
(213H5R0001), Palimpati S.S Varsha(213H5R0002)* of ADITYA COLLEGE OF
PHARMACY, Surampalem, affiliated to Jawaharlal Nehru Technological
University, Kakinada, for partial fulfilment of degree of Bachelor of Pharmacy in
Pharmacology. The report embedded in this thesis was carried out under the
guidance of Miss K. Gnaneshwari, M.Pharm Assistant Professor, Department of
Pharmacology in Aditya college of pharmacy, Surampalem.

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BP301T. PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory)

45 Hours

Scope: This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus.

Objectives: Upon completion of the course the student shall be able to

1. write the structure, name and the type of isomerism of the organic compound
2. write the reaction, name the reaction and orientation of reactions
3. account for reactivity/stability of compounds,
4. prepare organic compounds

Course Content:

General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained

To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

UNIT I

10 Hours

- **Benzene and its derivatives**
 - A. **Analytical**, synthetic and other evidences in the derivation of structure of benzene, Orbital picture, resonance in benzene, aromatic characters, Huckel's rule
 - B. Reactions of benzene - nitration, sulphonation, halogenation- reactivity, Friedelcrafts alkylation- reactivity, limitations, Friedelcrafts acylation.
 - C. Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction
 - D. Structure and uses of DDT, Saccharin, BHC and Chloramine

UNIT II

10 Hours

- **Phenols*** - Acidity of phenols, effect of substituents on acidity, qualitative tests, Structure and uses of phenol, cresols, resorcinol, naphthols
- **Aromatic Amines*** - Basicity of amines, effect of substituents on basicity, and synthetic uses of aryl diazonium salts
- **Aromatic Acids*** -Acidity, effect of substituents on acidity and important reactions of benzoic acid.

UNIT III

10 Hours

- **Fats and Oils**
 - a. Fatty acids – reactions.



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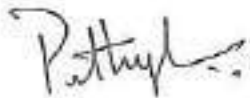
This is to certify that **ALAMURI KRISHNA CHAKRA MADHU LAKSHMI**, is a bonafide student of **ADITYA COLLEGE OF PHARMACY**, E.G. District, Andhra Pradesh, has undergone industrial training work in our organization from **1st June 2023 to 30th June 2023**, as a part of fulfillment of her B. Pharmacy Course bearing **H.T. No:203H1R0002**.

During the training period she had interacted with Quality control, Quality Assurance, and production Departments Incharges and acquired basic knowledge in these areas.

During the aforesaid period, we found her to be hard working, punctual & sincere. We wish her all the best for her future endeavors.

We wish her bright future

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BP 702 T. INDUSTRIAL PHARMACYII (Theory)

45 Hours

Scope: This course is designed to impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market

Objectives: Upon completion of the course, the student shall be able to:

1. Know the process of pilot plant and scale up of pharmaceutical dosage forms
2. Understand the process of technology transfer from lab scale to commercial batch
3. Know different Laws and Acts that regulate pharmaceutical industry
4. Understand the approval process and regulatory requirements for drug products

Course Content:

UNIT-I

10 Hours

Pilot plant scale up techniques: General considerations - including significance of personnel requirements, space requirements, raw materials, Pilot plant scale up considerations for solids, liquid orals, semi solids and relevant documentation, SUPAC guidelines, Introduction to platform technology

UNIT-II

10 Hours

Technology development and transfer: WHO guidelines for Technology Transfer(TT): Terminology, Technology transfer protocol, Quality risk management, Transfer from R & D to production (Process, packaging and cleaning), Granularity of TT Process (API, excipients, finished products, packaging materials) Documentation, Premises and equipments, qualification and validation, quality control, analytical method transfer, Approved regulatory bodies and agencies, Commercialization - practical aspects and problems (case studies), TT agencies in India - APCTD, NRDC, TIFAC, BCIL, TBSE / SIDBI; TT related documentation - confidentiality agreement, licensing, MoUs, legal issues

UNIT-III

10 Hours

Regulatory affairs: Introduction, Historical overview of Regulatory Affairs, Regulatory authorities, Role of Regulatory affairs department, Responsibility of Regulatory Affairs Professionals

Regulatory requirements for drug approval: Drug Development Teams, Non-Clinical Drug Development, Pharmacology, Drug Metabolism and Toxicology, General considerations of Investigational New Drug (IND) Application, Investigator's Brochure (IB) and New Drug Application (NDA), Clinical research / BE studies, Clinical Research Protocols, Biostatistics in Pharmaceutical Product Development, Data Presentation for FDA Submissions, Management of Clinical Studies.



UNIT-IV

08 Hours

Quality management systems: Quality management & Certifications: Concept of Quality, Total Quality Management, Quality by Design (QbD), Six Sigma concept, Out of Specifications (OOS), Change control, Introduction to ISO 9000 series of quality systems standards, ISO 14000, NABL, GLP

UNIT-V

07 Hours

Indian Regulatory Requirements: Central Drug Standard Control Organization (CDSCO) and State Licensing Authority: Organization, Responsibilities, Certificate of Pharmaceutical Product (COPP), Regulatory requirements and approval procedures for New Drugs.

Recommended Books: (Latest Editions)

1. Regulatory Affairs from Wikipedia, the free encyclopedia modified on 7th April available at http://en.wikipedia.org/wiki/Regulatory_Affairs.
2. International Regulatory Affairs Updates, 2005. available at <http://www.iraup.com/about.php>
3. Douglas J Pisano and David S. Mantus. Text book of FDA Regulatory Affairs A Guide for Prescription Drugs, Medical Devices, and Biologics' Second Edition.
4. Regulatory Affairs brought by learning plus, inc. available at <http://www.cgmp.com/ra.htm>.




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This is to certify that **ADAM USHARANI**, is a bonafide student of **ADITYA COLLEGE OF PHARMACY**, E.G. District, Andhra Pradesh, has undergone industrial training work in our organization from 1st June 2023 to 30th June 2023, as a part of fulfillment of her B. Pharmacy Course bearing **H.T. No:203H1R0001**.

During the training period she had interacted with Quality control, Quality Assurance, and production Departments incharges and acquired basic knowledge in these areas.

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BP107P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)**4 Hours/week**

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. Introduction to hemocytometry.
7. Enumeration of white blood cell (WBC) count
8. Enumeration of total red blood corpuscles (RBC) count
9. Determination of bleeding time
10. Determination of clotting time
11. Estimation of hemoglobin content
12. Determination of blood group.
13. Determination of erythrocyte sedimentation rate (ESR).
14. Determination of heart rate and pulse rate.
15. Recording of blood pressure.

Recommended Books (Latest Editions)

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
4. Text book of Medical Physiology- Arthur C. Guyton and John E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.



6. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brother's medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.

Reference Books (Latest Editions)

1. Physiological basis of Medical Practice-Best and Taylor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C. Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
3. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje ,Academic Publishers Kolkata




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Sl. No.	Regd. No.	Name
21201100006	2009011	MAYAGANGA NARAYAN
22201100007	2009012	SAVITHA KODURU B. SUDAR
23201100008	2009013	SAUTHI LAKSHMI DEVI
24201100009	2009014	SHARAD KUTUMBA
25201100010	2009015	SITA KADA KANDAM
26201100011	2009016	AMRITA KAPURANATH
27201100012	2009017	A. S. S. SREETHA
28201100013	2009018	P. R. DEVI SATHYA
29201100014	2009019	CHANDRA RAJ KANDAM
30201100015	2009020	JANAKI KANDAM
31201100016	2009021	CHANDRA KANDAM
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33201100018	2009023	KANDAM SATHYA
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PRACTICAL CLASSES

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BP108P. PHARMACEUTICAL ANALYSIS (Practical)

4 Hours / Week

- I Limit Test of the following**
 - (1) Chloride
 - (2) Sulphate
 - (3) Iron
 - (4) Arsenic

- II Preparation and standardization of**
 - (1) Sodium hydroxide
 - (2) Sulphuric acid
 - (3) Sodium thiosulfate
 - (4) Potassium permanganate
 - (5) Ceric ammonium sulphate

- III Assay of the following compounds along with Standardization of Titrant**
 - (1) Ammonium chloride by acid base titration
 - (2) Ferrous sulphate by Cerimetry
 - (3) Copper sulphate by Iodometry
 - (4) Calcium gluconate by complexometry
 - (5) Hydrogen peroxide by Permanganometry
 - (6) Sodium benzoate by non-aqueous titration
 - (7) Sodium Chloride by precipitation titration

- IV Determination of Normality by electro-analytical methods**
 - (1) Conductometric titration of strong acid against strong base
 - (2) Conductometric titration of strong acid and weak acid against strong base
 - (3) Potentiometric titration of strong acid against strong base

Recommended Books: (Latest Editions)

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry
4. Bentley and Driver's Textbook of Pharmaceutical Chemistry
5. John H. Kennedy, Analytical chemistry principles
6. Indian Pharmacopoeia.



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SECTION CLASSES

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Attendance of Students is:

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	22001100055	BADAMPADE SUBBATH
	22001100056	KEELLY S MADHUSATHAN
	22001100057	SANTHA RAMA KRISHNA
	22001100058	DAVI JAGANNATHAN
	22001100059	SHARATH K
	22001100060	STANLEY KANDASAMY
	22001100061	AMRITHA KANDASAMY
	22001100062	A. S. S. SURESH
	22001100063	ROBERT J. ROBERTA
	22001100064	CHANDRA PRAJ. SURESH
	22001100065	JOSEPH W. ROYAPANDIC
	22001100066	ALAN S. ROYAPANDIC
	22001100067	KARUPATHI SATHYAN
	22001100068	KUTUBA THIRUM
	22001100069	KRISHNAPATTY SATHYAN
	22001100070	KRISHNAPATTY SATHYAN
	22001100071	KRISHNA SATHYAN
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PRACTICAL CLASSES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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BPI09P. PHARMACEUTICS I (Practical)

3 Hours / week

1. Syrups

- a) Syrup IP'66
- b) Compound syrup of Ferrous Phosphate BPC'68

2. Elixirs

- a) Piperazine citrate elixir
- b) Paracetamol pediatric elixir

3. Linctus

- a) Terpin Hydrate Linctus IP'66
- b) Iodine Throat Paint (Mandles Paint)

4. Solutions

- a) Strong solution of ammonium acetate
- b) Cresol with soap solution
- c) Lugol's solution

5. Suspensions

- a) Calamine lotion
- b) Magnesium Hydroxide mixture
- c) Aluminium Hydroxide gel

6. Emulsions

- a) Turpentine Liniment
- b) Liquid paraffin emulsion

7. Powders and Granules

- a) ORS powder (WHO)
- b) Effervescent granules
- c) Dusting powder
- d) Divided powders

8. Suppositories

- a) Glycerol gelatin suppository
- b) Cocoa butter suppository
- c) Zinc Oxide suppository

8. Semisolids

- a) Sulphur ointment
- b) Non staining-iodine ointment with methyl salicylate
- c) Carbopol gel

9. Gargles and Mouthwashes

- a) Iodine gargle
- b) Chlorhexidine mouthwash

Recommended Books: (Latest Editions)



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1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi.
2. Carter S.J., Cooper and Gunn's-Dispensing for Pharmaceutical Students, CBS publishers, New Delhi.
3. M.E. Aulton, Pharmaceutics, The Science& Dosage Form Design, Churchill Livingstone, Edinburgh.
4. Indian pharmacopoeia.
5. British pharmacopoeia.
6. Lachmann. Theory and Practice of Industrial Pharmacy, Lea & Febiger Publisher, The University of Michigan.
7. Alfonso R. Gennaro Remington. The Science and Practice of Pharmacy, Lippincott Williams, New Delhi.
8. Carter S.J., Cooper and Gunn's. Tutorial Pharmacy, CBS Publications, New Delhi.
9. E.A. Rawlins, Bentley's Text Book of Pharmaceutics, English Language Book Society, Elsevier Health Sciences, USA.
10. Isaac Ghebre Sellassie: Pharmaceutical Pelletization Technology, Marcel Dekker, INC, New York.
11. Dilip M. Parikh: Handbook of Pharmaceutical Granulation Technology, Marcel Dekker, INC, New York.
12. Francoise Nieloud and Gilberte Marti-Mestres: Pharmaceutical Emulsions and Suspensions, Marcel Dekker, INC, New York.



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BP 109P PHARMACEUTICS - I

PRACTICAL

ATTENDANCE OF STUDENT		Attendance of Students in												PRACTICAL CLASSES												No. of Absence	Percentage of Absence	Remarks			
Sl. No.	Regd. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2201100001	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100002	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100003	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100004	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100005	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100006	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100007	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100008	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100009	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100010	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100011	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100012	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100013	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100014	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100015	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100016	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100017	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100018	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100019	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100020	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100021	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100022	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100023	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100024	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100025	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100026	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100027	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100028	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100029	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2201100030	ADITHYAN K. S.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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ANATOMICAL CLASSES

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BP110P. PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)

4 Hours / Week

- I Limit tests for following ions**
 - Limit test for Chlorides and Sulphates
 - Modified limit test for Chlorides and Sulphates
 - Limit test for Iron
 - Limit test for Heavy metals
 - Limit test for Lead
 - Limit test for Arsenic
- II Identification test**
 - Magnesium hydroxide
 - Ferrous sulphate
 - Sodium bicarbonate
 - Calcium gluconate
 - Copper sulphate
- III Test for purity**
 - Swelling power of Bentonite
 - Neutralizing capacity of aluminum hydroxide gel
 - Determination of potassium iodate and iodine in potassium iodide
- IV Preparation of inorganic pharmaceuticals**
 - Boric acid
 - Potash alum
 - Ferrous sulphate

Recommended Books (Latest Editions)

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition
4. M.L. Schroff, Inorganic Pharmaceutical Chemistry
5. Bentley and Driver's Textbook of Pharmaceutical Chemistry
6. Anand & Chatwal, Inorganic Pharmaceutical Chemistry
7. Indian Pharmacopoeia



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Attendance of Students in

PRACTICAL CLASSES

BP111P.COMMUNICATION SKILLS (Practical)

2 Hours / week

The following learning modules are to be conducted using wordsworth® English language lab software

Basic communication covering the following topics

Meeting People

Asking Questions

Making Friends

What did you do?

Do's and Dont's

Pronunciations covering the following topics

Pronunciation (Consonant Sounds)

Pronunciation and Nouns

Pronunciation (Vowel Sounds)

Advanced Learning

Listening Comprehension / Direct and Indirect Speech

Figures of Speech

Effective Communication

Writing Skills

Effective Writing

Interview Handling Skills

E-Mail etiquette

Presentation Skills




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Recommended Books: (Latest Edition)

1. Basic communication skills for Technology, Andreja. J. Ruther Ford, 2nd Edition, Pearson Education, 2011
2. Communication skills, Sanjay Kumar, Pushpalata, 1st Edition, Oxford Press, 2011
3. Organizational Behaviour, Stephen .P. Robbins, 1st Edition, Pearson, 2013
4. Brilliant- Communication skills, Gill Hasson, 1st Edition, Pearson Life, 2011
5. The Ace of Soft Skills: Attitude, Communication and Etiquette for success, Gopala Swamy Ramesh, 5th Edition, Pearson, 2013
6. Developing your influencing skills, Deborah Dalley, Lois Burton, Margaret, Green hall, 1st Edition Universe of Learning LTD, 2010
7. Communication skills for professionals, Konar nira, 2nd Edition, New arrivals – PHI, 2011
8. Personality development and soft skills, Barun K Mitra, 1st Edition, Oxford Press, 2011
9. Soft skill for everyone, Butter Field, 1st Edition, Cengage Learning india pvt.ltd, 2011
10. Soft skills and professional communication, Francis Peters SJ, 1st Edition, Mc Graw Hill Education, 2011
11. Effective communication, John Adair, 4th Edition, Pan Mac Millan, 2009
12. Bringing out the best in people, Aubrey Daniels, 2nd Edition, Mc Graw Hill, 1999




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BPIIP COMMUNICATION SKILLS PRACTICAL.

ATTENDANCE OF STUDENTS IN		Attendance of Students in		PRACTICAL CLASSES																																																																																																		
Sl. No.	Roll No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	
1	21010001	ANAND K. SINGH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	21010002	ANAND K. SINGH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
3	21010003	ANAND K. SINGH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
4	21010004	ANAND K. SINGH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86														

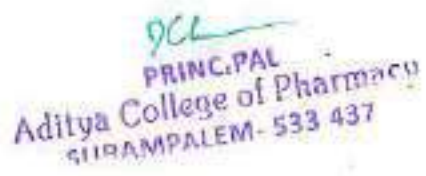
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Practical Class

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BPI12RBP.REMEDIAL BIOLOGY (Practical)

30 Hours

1. Introduction to experiments in biology
 - a) Study of Microscope
 - b) Section cutting techniques
 - c) Mounting and staining
 - d) Permanent slide preparation
2. Study of cell and its inclusions
3. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications
4. Detailed study of frog by using computer models
5. Microscopic study and identification of tissues pertinent to Stem, Root Leaf, seed, fruit and flower
6. Identification of bones
7. Determination of blood group
8. Determination of blood pressure
9. Determination of tidal volume

Reference Books

1. Practical human anatomy and physiology. by S.R.Kale and R.R.Kale.
2. A Manual of pharmaceutical biology practical by S.B.Gokhale, C.K.Kokate and S.P.Shriwastava.
3. Biology practical manual according to National core curriculum .Biology forum of Karnataka. Prof .M.J.H.Shafi




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Recommended Books (Latest Editions)

1. Principles of Biochemistry by Lehninger.
2. Harper's Biochemistry by Robert K. Murry, Daryl K. Granner and Victor W. Rodwell.
3. Biochemistry by Stryer.
4. Biochemistry by D. Satyanarayan and U.Chakrapani
5. Textbook of Biochemistry by Rama Rao.
6. Textbook of Biochemistry by Deb.
7. Outlines of Biochemistry by Conn and Stumpf
8. Practical Biochemistry by R.C. Gupta and S. Bhargavan.
9. Introduction of Practical Biochemistry by David T. Plummer. (3rd Edition)
10. Practical Biochemistry for Medical students by Rajagopal and Ramakrishna.
11. Practical Biochemistry by Harold Varley.

BP 204T.PATHOPHYSIOLOGY (THEORY)

45Hours

Scope: Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.

Objectives: Upon completion of the subject student shall be able to –

1. Describe the etiology and pathogenesis of the selected disease states;
2. Name the signs and symptoms of the diseases; and
3. Mention the complications of the diseases.

Course content:

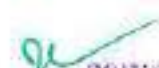
Unit I

10Hours

- **Basic principles of Cell injury and Adaptation:**

Introduction, definitions, Homeostasis, Components and Types of Feedback systems, Causes of cellular injury, Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage), Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, hyperplasia, Metaplasia, Dysplasia), Cell swelling, Intra cellular accumulation, Calcification, Enzyme leakage and Cell Death Acidosis & Alkalosis, Electrolyte imbalance




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POSTAL CLASSED

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Attendance of Students in		ORIGINAL CLASSES	
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BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. To study the integumentary and special senses using specimen, models, etc.,
2. To study the nervous system using specimen, models, etc.,
3. To study the endocrine system using specimen, models, etc
4. To demonstrate the general neurological examination
5. To demonstrate the function of olfactory nerve
6. To examine the different types of taste.
7. To demonstrate the visual acuity
8. To demonstrate the reflex activity
9. Recording of body temperature
10. To demonstrate positive and negative feedback mechanism.
11. Determination of tidal volume and vital capacity.
12. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.
13. Recording of basal mass index
14. Study of family planning devices and pregnancy diagnosis test.
15. Demonstration of total blood count by cell analyser
16. Permanent slides of vital organs and gonads.

Recommended Books (Latest Editions)

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co,Riverview,MI USA




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4. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.
6. Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.

Reference Books:

1. Physiological basis of Medical Practice-Best and Taylor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
3. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje ,Academic Publishers Kolkata



ATTENDANCE OF STUDENT

Sl. No.	Regd. No.	STUDENT'S NAME
1	2201100001	ADITHYAN MANDARAJAN
2	2201100002	ADITHYAN MANDARAJAN
3	2201100003	ADITHYAN MANDARAJAN
4	2201100004	ADITHYAN MANDARAJAN
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30	2201100030	ADITHYAN MANDARAJAN

Attendance of Students

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PRACTICAL CLASSES

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BP208P. PHARMACEUTICAL ORGANIC CHEMISTRY -I (Practical)

4 Hours / week

1. Systematic qualitative analysis of unknown organic compounds like
 1. Preliminary test: Color, odour, aliphatic/aromatic compounds, saturation and unsaturation, etc.
 2. Detection of elements like Nitrogen, Sulphur and Halogen by Lassaigne's test
 3. Solubility test
 4. Functional group test like Phenols, Amides/ Urea, Carbohydrates, Amines, Carboxylic acids, Aldehydes and Ketones, Alcohols, Esters, Aromatic and Halogenated Hydrocarbons, Nitro compounds and Anilides.
 5. Melting point/Boiling point of organic compounds
 6. Identification of the unknown compound from the literature using melting point/ boiling point.
 7. Preparation of the derivatives and confirmation of the unknown compound by melting point/ boiling point.
 8. Minimum 5 unknown organic compounds to be analysed systematically.
2. Preparation of suitable solid derivatives from organic compounds
3. Construction of molecular models

Recommended Books (Latest Editions)

1. Organic Chemistry by Morrison and Boyd
2. Organic Chemistry by I.L. Finar , Volume-I
3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
4. Organic Chemistry by P.L.Soni
5. Practical Organic Chemistry by Mann and Saunders.
6. Vogel's text book of Practical Organic Chemistry
7. Advanced Practical organic chemistry by N.K.Vishnoi.
8. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.
9. Reaction and reaction mechanism by Ahluwalia/Chatwal.



ATTENDANCE OF STU		Roll No.	
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100100001	CHANDRA MOHITA		
100100002	K. S. KARTHIKA		
100100003	SAVITHI DEVI		
100100004	GOUDU KARTHAYYAN		
100100005	DEVIDAS NIGRA		
100100006	S. V. LAKSHMI DEVI		
100100007	ANGELINA JIM PATRICK		
100100008	MALLI KACA CHARAN		
100100009	MAHARATHI RAJESH		
100100010	MARCHELLI ENAYITH		
100100011	MAHA SUDHAKAR		
100100012	MOLLETHI DURGA SARANY		
100100013	MAHARATHI RAJESH		
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100100029	MAHARATHI RAJESH		
100100030	MARCHELLI ENAYITH		

Attendance of Students in		PRACTICAL CLASSES	
1	2	3	4
100100001	CHANDRA MOHITA		
100100002	K. S. KARTHIKA		
100100003	SAVITHI DEVI		
100100004	GOUDU KARTHAYYAN		
100100005	DEVIDAS NIGRA		
100100006	S. V. LAKSHMI DEVI		
100100007	ANGELINA JIM PATRICK		
100100008	MALLI KACA CHARAN		
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UNIT V

07 Hours

- **Enzymes**

Introduction, properties, nomenclature and IUB classification of enzymes

Enzyme kinetics (Michaelis plot, Line Weaver Burke plot)

Enzyme inhibitors with examples

Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation

Therapeutic and diagnostic applications of enzymes and isoenzymes

Coenzymes –Structure and biochemical functions

BP 209 P. BIOCHEMISTRY (Practical)

4 Hours / Week

1. Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and starch)
2. Identification tests for Proteins (albumin and Casein)
3. Quantitative analysis of reducing sugars (DNSA method) and Proteins (Biuret method)
4. Qualitative analysis of urine for abnormal constituents
5. Determination of blood creatinine
6. Determination of blood sugar
7. Determination of serum total cholesterol
8. Preparation of buffer solution and measurement of pH
9. Study of enzymatic hydrolysis of starch
10. Determination of Salivary amylase activity
11. Study the effect of Temperature on Salivary amylase activity.
12. Study the effect of substrate concentration on salivary amylase activity.




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PRACTICAL CLASSES

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BP210P. COMPUTER APPLICATIONS IN PHARMACY (Practical)

1. Design a questionnaire using a word processing package to gather information about a particular disease.
2. Create a HTML web page to show personal information.
3. Retrieve the information of a drug and its adverse effects using online tools
4. Creating mailing labels Using Label Wizard , generating label in MS WORD
5. Create a database in MS Access to store the patient information with the required fields Using access
6. Design a form in MS Access to view, add, delete and modify the patient record in the database
7. Generating report and printing the report from patient database
8. Creating invoice table using – MS Access
9. Drug information storage and retrieval using MS Access
10. Creating and working with queries in MS Access
11. Exporting Tables, Queries, Forms and Reports to web pages
12. Exporting Tables, Queries, Forms and Reports to XML pages

Recommended books (Latest edition):

1. Computer Application in Pharmacy – William E.Fassett – Lea and Febiger, 600 South Washington Square, USA, (215) 922-1330.
2. Computer Application in Pharmaceutical Research and Development –Sean Ekins – Wiley-Interscience, A John Wiley and Sons, INC., Publication, USA
3. Bioinformatics (Concept, Skills and Applications) – S.C.Rastogi-CBS Publishers and Distributors, 4596/1- A, 11 Darya Gani, New Delhi – 110 002(INDIA)
4. Microsoft office Access - 2003, Application Development Using VBA, SQL Server, DAP and Infopath – Cary N.Prague – Wiley Dreamtech India (P) Ltd., 4435/7, Ansari Road, Daryagani, New Delhi - 110002




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ATTENDANCE OF STUDENTS IN THEORY CLASSES

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Attendance of Students in Theory Classes

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BP305P. PHARMACEUTICAL ORGANIC CHEMISTRY -II (Practical)

4 Hrs/week

I Experiments involving laboratory techniques

- Recrystallization
- Steam distillation

II Determination of following oil values (including standardization of reagents)

- Acid value
- Saponification value
- Iodine value

III Preparation of compounds

- Benzanilide/Phenyl benzoate/Acetanilide from Aniline/ Phenol /Aniline by acylation reaction.
- 2,4,6-Tribromo aniline/Para bromo acetanilide from Aniline/
- Acetanilide by halogenation (Bromination) reaction.
- 5-Nitro salicylic acid/Meta di nitro benzene from Salicylic acid / Nitro benzene by nitration reaction.
- Benzoic acid from Benzyl chloride by oxidation reaction.
- Benzoic acid/ Salicylic acid from alkyl benzoate/ alkyl salicylate by hydrolysis reaction.
- 1-Phenyl azo-2-naphthol from Aniline by diazotization and coupling reactions.
- Benzil from Benzoin by oxidation reaction.
- Dibenzal acetone from Benzaldehyde by Claisen Schmidt reaction
- Cinnamic acid from Benzaldehyde by Perkin reaction
- *P*-Iodo benzoic acid from *P*-amino benzoic acid

Recommended Books (Latest Editions)

1. Organic Chemistry by Morrison and Boyd
2. Organic Chemistry by I.L. Finar, Volume-I
3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
4. Organic Chemistry by P.L.Soni
5. Practical Organic Chemistry by Mann and Saunders.
6. Vogel's text book of Practical Organic Chemistry
7. Advanced Practical organic chemistry by N.K. Arora



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CHEMISTRY - II PRACTICAL

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BP306P. PHYSICAL PHARMACEUTICS – I (Practical)

4 Hrs/week

1. Determination the solubility of drug at room temperature
2. Determination of pKa value by Half Neutralization/ Henderson Hasselbalch equation.
3. Determination of Partition co- efficient of benzoic acid in benzene and water
4. Determination of Partition co- efficient of Iodine in CCl₄ and water
5. Determination of % composition of NaCl in a solution using phenol-water system by CST method
6. Determination of surface tension of given liquids by drop count and drop weight method
7. Determination of HLB number of a surfactant by saponification method
8. Determination of Freundlich and Langmuir constants using activated char coal
9. Determination of critical micellar concentration of surfactants
10. Determination of stability constant and donor acceptor ratio of PABA-Caffeine complex by solubility method
11. Determination of stability constant and donor acceptor ratio of Cupric-Glycine complex by pH titration method

Recommended Books: (Latest Editions)

1. Physical Pharmacy by Alfred Martin
2. Experimental Pharmaceutics by Eugene, Parott.
3. Tutorial Pharmacy by Cooper and Gunn.
4. Stocklosam J. Pharmaceutical Calculations, Lea &Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, MarcelDekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical Dosage forms. Disperse systems, volume 1, 2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C and ManavalanR.
8. Laboratory Manual of Physical Pharmaceutics, C.V.S. Subramanyam, J. Thimma settee
9. Physical Pharmaceutics by C.V.S. Subramanyam
10. Test book of Physical Pharmacy, by Gaurav Jain & Roop K. Khar



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BP306P PHYSICAL PHARMACEUTICS-I

PRACTICAL

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BP 307P.PHARMACEUTICAL MICROBIOLOGY (Practical)

4 Hrs/week

1. Introduction and study of different equipments and processing, e.g., B.O.D. incubator, laminar flow, aseptic hood, autoclave, hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology.
2. Sterilization of glassware, preparation and sterilization of media.
3. Sub culturing of bacteria and fungus. Nutrient stabs and slants preparations.
4. Staining methods- Simple, Grams staining and acid fast staining (Demonstration with practical).
5. Isolation of pure culture of micro-organisms by multiple streak plate technique and other techniques.
6. Microbiological assay of antibiotics by cup plate method and other methods
7. Motility determination by Hanging drop method.
8. Sterility testing of pharmaceuticals.
9. Bacteriological analysis of water
10. Biochemical test.

Recommended Books (Latest edition)

1. W.B. Hugo and A.D. Russel: Pharmaceutical Microbiology, Blackwell Scientific publications, Oxford London.
2. Prescott and Dunn., Industrial Microbiology, 4th edition, CBS Publishers & Distributors, Delhi.
3. Pelczar, Chan Kreig, Microbiology, Tata McGraw Hill edn.
4. Malcolm Harris, Balliere Tindall and Cox: Pharmaceutical Microbiology.
5. Rose: Industrial Microbiology.
6. Probisher, Hinsdill et al: Fundamentals of Microbiology, 9th ed. Japan
7. Cooper and Gunn's: Tutorial Pharmacy, CBS Publisher and Distribution.
8. Peppler: Microbial Technology.
9. I.P., B.P., U.S.P.- latest editions.
10. Ananthnarayan : Text Book of Microbiology, Orient-Longman, Chennai
11. Edward: Fundamentals of Microbiology.
12. N.K.Jain: Pharmaceutical Microbiology, Vallabh Prakashan, Delhi
13. Bergeys manual of systematic bacteriology, Williams and Wilkins- A Waverly company




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FUNCTIONAL CLASSES

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BP308P - PHARMACEUTICAL ENGINEERING (Practical)

4 Hours/week

- I. Determination of radiation constant of brass, iron, unpainted and painted glass.
- II. Steam distillation – To calculate the efficiency of steam distillation.
- III. To determine the overall heat transfer coefficient by heat exchanger.
- IV. Construction of drying curves (for calcium carbonate and starch).
- V. Determination of moisture content and loss on drying.
- VI. Determination of humidity of air – i) From wet and dry bulb temperatures –use of Dew point method.
- VII. Description of Construction working and application of Pharmaceutical Machinery such as rotary tablet machine, fluidized bed coater, fluid energy mill, de humidifier.
- VIII. Size analysis by sieving – To evaluate size distribution of tablet granulations – Construction of various size frequency curves including arithmetic and logarithmic probability plots.
- IX. Size reduction: To verify the laws of size reduction using ball mill and determining Kicks, Rittinger's, Bond's coefficients, power requirement and critical speed of Ball Mill.
- X. Demonstration of colloid mill, planetary mixer, fluidized bed dryer, freeze dryer and such other major equipment.
- XI. Factors affecting Rate of Filtration and Evaporation (Surface area, Concentration and Thickness/ viscosity
- XII. To study the effect of time on the Rate of Crystallization.
- XIII. To calculate the uniformity Index for given sample by using Double Cone Blender.



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CONCRETE CLASSES

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BP406P. MEDICINAL CHEMISTRY – I (Practical)

4 Hours/Week

I Preparation of drugs/ intermediates

- 1 1,3-pyrazole
- 2 1,3-oxazole
- 3 Benzimidazole
- 4 Benztriazole
- 5 2,3- diphenyl quinoxaline
- 6 Benzocaine

7 Phenytoin

8 Phenothiazine

9 Barbiturate

II Assay of drugs

- 1 Chlorpromazine
- 2 Phenobarbitone
- 3 Atropine
- 4 Ibuprofen
- 5 Aspirin
- 6 Furosemide

III Determination of Partition coefficient for any two drugs

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV.
4. Introduction to principles of drug design- Smith and Williams.
5. Remington's Pharmaceutical Sciences.
6. Martindale's extra pharmacopoeia.




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7. Organic Chemistry by I.L. Finar, Vol. II.
8. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1-5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry- A.I Vogel.




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BP 407P. PHYSICAL PHARMACEUTICS- II (Practical)

3 Hrs/week

1. Determination of particle size, particle size distribution using sieving method
2. Determination of particle size, particle size distribution using Microscopic method
3. Determination of bulk density, true density and porosity
4. Determine the angle of repose and influence of lubricant on angle of repose
5. Determination of viscosity of liquid using Ostwald's viscometer
6. Determination sedimentation volume with effect of different suspending agent
7. Determination sedimentation volume with effect of different concentration of single suspending agent
8. Determination of viscosity of semisolid by using Brookfield viscometer
9. Determination of reaction rate constant first order.
10. Determination of reaction rate constant second order
11. Accelerated stability studies

Recommended Books: (Latest Editions)

1. Physical Pharmacy by Alfred Martin, Sixth edition
2. Experimental pharmaceutics by Eugene, Parott.
3. Tutorial pharmacy by Cooper and Gunn.
4. Stocklosam J, Pharmaceutical calculations, Lea & Febiger, Philadelphia.
5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, Marcel Dekkar Inc.
6. Liberman H.A, Lachman C, Pharmaceutical dosage forms. Disperse systems, volume 1, 2, 3. Marcel Dekkar Inc.
7. Physical Pharmaceutics by Ramasamy C, and Manavalan R.




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BP407 P PHYSICAL PHARMACEUTICS-II

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STATISTICAL CLASSES

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BP 408 P.PHARMACOLOGY-I (Practical)

4Hrs/Week

1. Introduction to experimental pharmacology.
2. Commonly used instruments in experimental pharmacology.
3. Study of common laboratory animals.
4. Maintenance of laboratory animals as per CPCSEA guidelines.
5. Common laboratory techniques. Blood withdrawal, serum and plasma separation, anesthetics and euthanasia used for animal studies.
6. Study of different routes of drugs administration in mice/rats.
7. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
8. Effect of drugs on ciliary motility of frog oesophagus
9. Effect of drugs on rabbit eye.
10. Effects of skeletal muscle relaxants using rota-rod apparatus.
11. Effect of drugs on locomotor activity using actophotometer.
12. Anticonvulsant effect of drugs by MES and PTZ method.
13. Study of stereotype and anti-catatonic activity of drugs on rats/mice.
14. Study of anxiolytic activity of drugs using rats/mice.
15. Study of local anesthetics by different methods

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins
5. Mycek M.J., Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology



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6. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert,
9. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
10. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,



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2	221010002	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
3	221010003	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
4	221010004	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
5	221010005	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
6	221010006	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
7	221010007	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
8	221010008	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9	221010009	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	221010010	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
11	221010011	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12	221010012	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
13	221010013	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
14	221010014	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
15	221010015	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
16	221010016	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
17	221010017	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
18	221010018	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
19	221010019	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
20	221010020	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
21	221010021	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
22	221010022	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
23	221010023	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
24	221010024	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
25	221010025	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
26	221010026	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
27	221010027	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
28	221010028	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
29	221010029	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
30	221010030	M. S. SURESHKUMAR	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

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BP409 P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical)

4 Hours/Week

1. Analysis of crude drugs by chemical tests: (i) Tragacanth (ii) Acacia (iii) Agar (iv) Gelatin (v) starch (vi) Honey (vii) Castor oil
2. Determination of stomatal number and index
3. Determination of vein islet number, vein islet termination and palisade ratio.
4. Determination of size of starch grains, calcium oxalate crystals by eye piece micrometer
5. Determination of Fiber length and width
6. Determination of number of starch grains by Lycopodium spore method
7. Determination of Ash value
8. Determination of Extractive values of crude drugs
9. Determination of moisture content of crude drugs
10. Determination of swelling index and foaming

Recommended Books: (Latest Editions)

1. W.C. Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Tyler, V.E., Brady, L.R. and Robbers, J.E., Pharmacognosy, 9th Edn., Lea and Febiger, Philadelphia, 1988.
3. Text Book of Pharmacognosy by T.E. Wallis
4. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
5. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhale (2007), 37th Edition, Nirali Prakashan, New Delhi.
6. Herbal drug industry by R.D. Choudhary (1996), 1st Edn, Eastern Publisher, New Delhi.
7. Essentials of Pharmacognosy, Dr.SH. Ansari, 1st edition, Birla publications, New Delhi, 2007
8. Practical Pharmacognosy: C.K. Kokate, Purohit, Gokhale
9. Anatomy of Crude Drugs by M.A. Iyengar



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BP 409 P PHARMACODYNAMICS AND PHYTOCHEMISTRY-I

PRACTICAL

ATTENDANCE OF STUDENTS

Sl. No.	Regd. No.	Student Name
1	221410001	KONNAR VEDHA RAMA SAI
2	221410002	ADURU TEJASWINI
3	221410003	ARUNAJA SOWMYA
4	221410004	JANEDEY HIRANMAYI
5	221410005	SHARDA RAMESH
6	221410006	SANDHYA SATHISH
7	221410007	CHANDRA BHANU
8	221410008	CHIDAMBARAM SATHISH
9	221410009	CHIDAMBARAM SATHISH
10	221410010	CHIDAMBARAM SATHISH
11	221410011	CHIDAMBARAM SATHISH
12	221410012	CHIDAMBARAM SATHISH
13	221410013	CHIDAMBARAM SATHISH
14	221410014	CHIDAMBARAM SATHISH
15	221410015	CHIDAMBARAM SATHISH
16	221410016	CHIDAMBARAM SATHISH
17	221410017	CHIDAMBARAM SATHISH
18	221410018	CHIDAMBARAM SATHISH
19	221410019	CHIDAMBARAM SATHISH
20	221410020	CHIDAMBARAM SATHISH
21	221410021	CHIDAMBARAM SATHISH
22	221410022	CHIDAMBARAM SATHISH
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24	221410024	CHIDAMBARAM SATHISH
25	221410025	CHIDAMBARAM SATHISH
26	221410026	CHIDAMBARAM SATHISH
27	221410027	CHIDAMBARAM SATHISH
28	221410028	CHIDAMBARAM SATHISH
29	221410029	CHIDAMBARAM SATHISH
30	221410030	CHIDAMBARAM SATHISH

Attendance of Students in

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

PRACTICAL CLASSROOM

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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SURGICAL CLASSES

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393
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BP 506 P. Industrial PharmacyI (Practical)

4 Hours/week

1. Preformulation studies on paracetamol/asparin/or any other drug
2. Preparation and evaluation of Paracetamol tablets
3. Preparation and evaluation of Aspirin tablets
4. Coating of tablets- film coating of tables/granules
5. Preparation and evaluation of Tetracycline capsules
6. Preparation of Calcium Gluconate injection
7. Preparation of Ascorbic Acid injection
8. Quality control test of (as per IP) marketed tablets and capsules
9. Preparation of Eye drops/ and Eye ointments
10. Preparation of Creams (cold / vanishing cream)
11. Evaluation of Glass containers (as per IP)

Recommended Books: (Latest Editions)

1. Pharmaceutical dosage forms - Tablets, volume 1 -3 by H.A. Liberman, Leon Lachman & J.B.Schwartz
2. Pharmaceutical dosage form - Parenteral medication vol- 1&2 by Liberman & Lachman
3. Pharmaceutical dosage form disperse system VOL-1 by Liberman & Lachman
4. Modern Pharmaceutics by Gilbert S. Banker & C.T. Rhodes, 3rd Edition
5. Remington: The Science and Practice of Pharmacy, 20th edition Pharmaceutical Science (RPS)
6. Theory and Practice of Industrial Pharmacy by Liberman & Lachman
7. Pharmaceutics- The science of dosage form design by M.E.Aulton, Churchill livingstone, Latest edition
8. Introduction to Pharmaceutical Dosage Forms by H. C. Ansel, Lea &Febiger, Philadelphia, 5th edition, 2005
9. Drug stability - Principles and practice by Cartensen & C.J. Rhodes, 3rd Edition, Marcel Dekker Series, Vol 107.



BP 506P INDUSTRIAL PHARMACY-I

PRACTICAL

ATTENDANCE OF STUD			Attendance of Students													PRACTICAL CLASSES													No. of absences (Total)	Grand Total					
Sl. No.	Regd. No.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Theory	Practical	
	201118001	RITESH JANA																																	
	201118002	DASHMANYA																																	
	201118003	AKHIL KUMAR																																	
	201118004	A. JYOTHI YOGANATH																																	
	201118005	ROCKA DEPTHI																																	
	201118006	ROSTHI SUREYA																																	
	201118007	S. LAKSHMI PRASAD																																	
	201118008	CH. BHUVANESWAR																																	
	201118009	CHIRUPATI NADU LAKS																																	
	201118010	CHINTHA LOKESH K																																	
	201118011	DAS LAKSHMI JAYAS																																	
	201118012	D. VIJAYA LAKSHMI																																	
	201118013	G. RAGA SURESH																																	
	201118014	HEERAM KHDA MATH																																	
	201118015	GUTTINDEVI JISWA																																	
	201118016	JAYDAM MOHURATH																																	
	201118017	JANPATI PRASHANT																																	
	201118018	JOGI SAI SIVA																																	
	201118019	KADALI NIMA SRI																																	
	201118020	KARIMUNTI RAJESH																																	
	201118021	KARINCHI BHARATH																																	
	201118022	K. SWAPNA SURESH																																	
	201118023	KOLUTHURI KANYA J																																	
	201118024	K. G. KRISHNA PRAN																																	
	201118025	K. LINA SRI LAKSHMI																																	
	201118026	LAKSHI GUDU																																	

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BP 508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)

4 Hours/Week

1. Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel and Coriander
2. Exercise involving isolation & detection of active principles
 - a. Caffeine - from tea dust.
 - b. Diosgenin from Dioscorea
 - c. Atropine from Belladonna
 - d. Sennosides from Senna
3. Separation of sugars by Paper chromatography
4. TLC of herbal extract
5. Distillation of volatile oils and detection of phytoconstituents by TLC
6. Analysis of crude drugs by chemical tests: (i) Asafoetida (ii) Benzoin (iii) Colophony (iv) Aloes (v) Myrrh

Recommended Books: (Latest Editions)

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
3. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhale (2007), 37th Edition, Nirali Prakashan, New Delhi.
4. Herbal drug industry by R.D. Choudhary (1996), 1st Edn, Eastern Publisher, New Delhi.
5. Essentials of Pharmacognosy, Dr.SH.Ansari, 11nd edition, Birla publications, New Delhi, 2007
6. Herbal Cosmetics by H.Pande, Asia Pacific Business press, Inc, New Delhi.
7. A.N. Kalia, Textbook of Industrial Pharmacognosy, CBS Publishers, New Delhi, 2005.
8. R Endress, Plant cell Biotechnology, Springer-Verlag, Berlin, 1994.
9. Pharmacognosy & Pharmacobiotechnology. James Bobbers, Marilyn KS, VE Tylor.
10. The formulation and preparation of cosmetic, fragrances and flavours.
11. Remington's Pharmaceutical sciences.
12. Text Book of Biotechnology by Vyas and Dixit.
13. Text Book of Biotechnology by R.C. Dubey.




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BP607P. MEDICINAL CHEMISTRY- III (Practical)

4 Hours / week

I Preparation of drugs and intermediates

- 1 Sulphanilamide
- 2 7-Hydroxy, 4-methyl coumarin
- 3 Chlorobutanol
- 4 Triphenyl imidazole
- 5 Tolbutamide
- 6 Hexamine

II Assay of drugs

- 1 Isonicotinic acid hydrazide
- 2 Chloroquine
- 3 Metronidazole
- 4 Dapsone
- 5 Chlorpheniramine maleate
- 6 Benzyl penicillin

III Preparation of medicinally important compounds or intermediates by Microwave irradiation technique

IV Drawing structures and reactions using chem draw®

V Determination of physicochemical properties such as logP, clogP, MR, Molecular weight, Hydrogen bond donors and acceptors for class of drugs course content using drug design software Drug likeliness screening (Lipinskies RO5)

Recommended Books (Latest Editions)

1. Wilson and Giswold's Organic medicinal and Pharmaceutical Chemistry.
2. Foye's Principles of Medicinal Chemistry.
3. Burger's Medicinal Chemistry, Vol I to IV.
4. Introduction to principles of drug design- Smith and Williams.
5. Remington's Pharmaceutical Sciences.
6. Martindale's extra pharmacopoeia.




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7. Organic Chemistry by I.L. Finar, Vol. II.
8. The Organic Chemistry of Drug Synthesis by Lednicer, Vol. 1-5.
9. Indian Pharmacopoeia.
10. Text book of practical organic chemistry- A.I.Vogel.




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PRACTICAL

PRACTICE CLASS[illegible]

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ATTENDANCE OF STUDENTS

G. No.	Page No.	
2100000018		INDIRA KAVISTHAKA LA
2100000019		MITHA IRAN KUMAR
2100000020		MOGALLAPU SWARNA
2100000026		MOHAMMAD SHAHID
2100000030		MOLLETT MOOLNKA LA
2100000031		M. SUDHAKR REDDUR
2100000032		MALLAPU MEENAM
2100000033		MALAGANI SATYA PRA
2100000034		MILLI LAKSHMI SAROD
2100000037		MITLA LA VANTA
2100000038		MOHINI KIRANMA
2100000039		MUTTA NAGA SATYA
2100000045		M. SRI DEEPA NAGA P
2100000050		MADE VASANTHI LAK
2100000056		SARIBANGI SURENDRA
2100000061		SATYA SAI
2100000062		SATISH POVADE
2100000063		SUDHAKHUMAR SURE
2100000065		SIVASRAM SANKU L
2100000066		VELAGALA URMILA
2100000068		VINODLA PANDU
2100000069		VITTHALA DEEPA PO
2100000070		V. RAJASU RANTA LA
2100000078		PALAMATI CHINNAM
2100000080		NALLA POOLA AJEESH

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REACTIVE CLASSES

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Aditya College of Pharmacy
SURAMPALLEM- 533 437

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BP 608 P. PHARMACOLOGY-III (Practical)

4Hrs/Week

1. Dose calculation in pharmacological experiments
2. Antiallergic activity by mast cell stabilization assay
3. Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model.
4. Study of effect of drugs on gastrointestinal motility
5. Effect of agonist and antagonists on guinea pig ileum
6. Estimation of serum biochemical parameters by using semi- autoanalyser
7. Effect of saline purgative on frog intestine
8. Insulin hypoglycemic effect in rabbit
9. Test for pyrogens (rabbit method)
10. Determination of acute oral toxicity (LD50) of a drug from a given data.
11. Determination of acute skin irritation / corrosion of a test substance
12. Determination of acute eye irritation / corrosion of a test substance
13. Calculation of pharmacokinetic parameters from a given data
14. Biostatistics methods in experimental pharmacology(student's t test, ANOVA)
15. Biostatistics methods in experimental pharmacology (Chi square test, Wilcoxon Signed Rank test)

**Experiments are demonstrated by simulated experiments/videos*

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company. Kolkata,
9. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,
10. N.Udapa and P.D. Gupta, Concepts in Chronopharmacology.




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PRACTICAL CLASSES

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ATTENDANCE OF STU

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12	00	01	02	03	04	05	06	07	08	09	10	11

PRACTICE CLASSES in which we discuss & practice...

19	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532
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BP 609 P. HERBAL DRUG TECHNOLOGY (Practical)

4 hours/ week

1. To perform preliminary phytochemical screening of crude drugs.
2. Determination of the alcohol content of Asava and Arista
3. Evaluation of excipients of natural origin
4. Incorporation of prepared and standardized extract in cosmetic formulations like creams, lotions and shampoos and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Monograph analysis of herbal drugs from recent Pharmacopoeias
7. Determination of Aldehyde content
8. Determination of Phenol content
9. Determination of total alkaloids

Recommended Books: (Latest Editions)

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy & Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.



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ATTENDANCE OF STUD

Attendance at Services

TECHNICAL CLASSES

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	210110001	HAILEY RAMSAYANAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110002	MADA NRIYAN KUMAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110003	ADIGALLAPU RAMPA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110004	KADAPALAD SHARUL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110005	KSILETI ARJUN K L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110006	N. SUBHASINI DEVI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110007	NALLAPU BHAVANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110008	PALAGATI SATYA PRIA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110009	PILLAI LAKSHMI SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110010	PILLAI LAVANYA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110011	PILLAI LAKSHMI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110012	PITTA NAGA DEVI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110013	R. SRI DURGA NAGA RA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110014	SADI VASANTHA LAKSHI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110015	SARASWATHI SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110016	SIVA SAI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110017	SATHA JAYANI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110018	SODRAL KIRAN SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110019	SUVA KSHAN BHASHI LA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110020	VILLAGALA UMMA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110021	VEDULA RAMINI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110022	VITTAGALA DEVI RAJIA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110023	VUKAKURU VANYA LA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110024	YALAMATI CHANDRAN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	210110025	YELLA POCIA CHESIRY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

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Aditya College of Pharmacy
SURAMPALEM- 533 437

ADVANCED PHARMACOLOGY - I

(MPL 102T)

Scope

The subject is designed to strengthen the basic knowledge in the field of pharmacology and to impart recent advances in the drugs used for the treatment of various diseases. In addition, this subject helps the students to understand the concepts of drug action and mechanisms involved

Objectives

Upon completion of the course the student shall be able to:

- 1 Discuss the pathophysiology and pharmacotherapy of certain diseases.
- 1 Explain the mechanism of drug actions at cellular and molecular level
- 1 Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

THEORY

60 Hrs

1. General Pharmacology

12 Hrs

- a Pharmacokinetics: The dynamics of drug absorption, distribution, biotransformation and elimination. Concepts of linear and non-linear compartment models. Significance of Protein binding.
- b Pharmacodynamics: Mechanism of drug action and the relationship between drug concentration and effect. Receptors, structural and functional families of receptors, quantitation of drug receptors interaction and elicited effects.

2 Neurotransmission

12 Hrs

- a General aspects and steps involved in neurotransmission.
- b Neurohumoral transmission in autonomic nervous system (Detailed study about neurotransmitters- Adrenaline and Acetylcholine).
- c Neurohumoral transmission in central nervous system (Detailed study about neurotransmitters- histamine, serotonin, dopamine, GABA, glutamate and glycine).
- d Non adrenergic non cholinergic transmission (NANC). Co-transmission

Systemic Pharmacology

A detailed study on pathophysiology of diseases, mechanism of action, pharmacology and toxicology of existing as well as novel drugs used in the following systems

Autonomic Pharmacology

Para sympathomimetics and lytics, sympathomimetics and lytics, agents affecting neuromuscular junction.



- | | | |
|---|---|--------|
| 3 | Central nervous system Pharmacology
General and local anesthetics
Sedatives and hypnotics, drugs used to treat anxiety.
Depression, psychosis, mania, epilepsy, neurodegenerative diseases.
Narcotic and non-narcotic analgesics. | 12 Hrs |
| 4 | Cardiovascular Pharmacology
Diuretics, antihypertensives, antiischemics, anti-arrhythmics, drugs for heart failure and hyperlipidemia.
Hematinics, coagulants, anticoagulants, fibrinolytics and anti-platelet drugs | 12 Hrs |
| 5 | Autocoid Pharmacology
The physiological and pathological role of Histamine, Serotonin, Kinins
Prostaglandins Opioid autocoids.
Pharmacology of antihistamines, 5 HT antagonists. | 12 Hrs |

REFERENCES

1. The Pharmacological Basis of Therapeutics, Goodman and Gillman's
2. Principles of Pharmacology. The Pathophysiologic basis of drug Therapy by David E Golan, Armen H, Tashjian Jr, Ehrin J, Armstrong, April W, Armstrong, Wolters, Kluwer-Lippincott Williams & Wilkins Publishers.
3. Basic and Clinical Pharmacology by B.G Katzung
4. Handbook of Clinical Pharmacokinetics by Gibaldi and Prescott.
5. Applied Biopharmaceutics and Pharmacokinetics by Leon Shargel and Andrew B.C.Yu.
6. Graham Smith. Oxford textbook of Clinical Pharmacology.
7. Avery Drug Treatment
8. Dipiro Pharmacology, Pathophysiological approach.
9. Green Pathophysiology for Pharmacists.
10. Robbins & Cortan Pathologic Basis of Disease, 9th Ed. (Robbins Pathology)
11. A Complete Textbook of Medical Pharmacology by Dr. S.K Srivastava published by APC Avichal Publishing Company
12. KD.Tripathi. Essentials of Medical Pharmacology.
13. Modern Pharmacology with Clinical Applications, Craig Charles R. & Stitzel Robert E., Lippincott Publishers.
14. Clinical Pharmacokinetics & Pharmacodynamics: Concepts and Applications – Malcolm Rowland and Thomas N.Tozer, Wolters Kluwer, Lippincott Williams & Wilkins Publishers.
15. Applied Biopharmaceutics and Pharmacokinetics, Pharmacodynamics and Drug metabolism for industrial scientists.
16. Modern Pharmacology, Craig CR. & Stitzel RE, Little Brown & Company.



EVALUATION OF IN-VIVO ANALGESIC AND ANTI-
INFLAMMATORY ACTIVITIES OF ETHANOLIC FLOWER
EXTRACT OF *AZADIRACHTA INDICA* (NEEM)

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of

MASTER OF PHARMACY IN PHARMACOLOGY

Submitted by

BANTUPALLI SOWMYA RANI (B.PHARM)
(REG.NO-223HIS0601)

Under the Guidance of

Dr. K. Ravishankar, M. pharm, PhD.
Principal and Professor of Aditya College of Pharmacy



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SURAMPalem -533437

2022-2024



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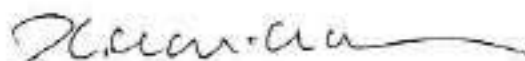
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This is to certify that the investigation described in this thesis entitled "EVALUATION OF IN-VIVO ANALGESIC AND ANTI-INFLAMMATORY ACTIVITIES OF ETHANOLIC FLOWER EXTRACT OF *AZADIRACHTA INDICA* (NEEM)" Submitted by BANTUPALLI SOWMYA RANI (Regd. No.223H1S0601) of Aditya college of pharmacy [affiliated to Jawaharlal Nehru Technology University Kakinada] for the partial fulfillment of degree of Master of Pharmacy in pharmacology. The report embedded in this thesis was carried out under the supervision of Dr. K. RAVISHANKAR M. Pharm, Ph. D. Principal of Aditya College of Pharmacy, Surampalem.

Evaluated
K. J. J.



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SEMESTER – II

ADVANCED PHARMACOLOGY - II (MPL 201T)

Scope

The subject is designed to strengthen the basic knowledge in the field of pharmacology and to impart recent advances in the drugs used for the treatment of various diseases. In addition, the subject helps the student to understand the concepts of drug action and mechanism involved.

Objectives

Upon completion of the course the student shall be able to:

- 1 Explain the mechanism of drug actions at cellular and molecular level
- 1 Discuss the Pathophysiology and pharmacotherapy of certain diseases
- 1 Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

THEORY

- | | |
|---|--------|
| 1. Endocrine Pharmacology | 60 Hrs |
| Molecular and cellular mechanism of action of hormones such as growth hormone, prolactin, thyroid, insulin and sex hormones.
Anti-thyroid drugs, Oral hypoglycemic agents, Oral contraceptives, Corticosteroids.
Drugs affecting calcium regulation. | 12 Hrs |
| 2. Chemotherapy | 12 Hrs |
| Cellular and molecular mechanism of actions and resistance of antimicrobial agents such as β -lactams, aminoglycosides, quinolones, Macrolide antibiotics. Antifungal, antiviral, and anti-TB drugs. | |
| 3. Chemotherapy | 12 Hrs |
| Drugs used in Protozoal Infections.
Drugs used in the treatment of Helminthiasis.
Chemotherapy of cancer Immunopharmacology.
Cellular and biochemical mediators of inflammation and immune response. Allergic or hypersensitivity reactions. Pharmacotherapy of asthma and COPD.
Immunosuppressants and Immunostimulants. | |
| 4. GIT Pharmacology | 12 Hrs |
| Antilucer drugs, Prokinetics, antiemetics, anti-diarrheals and drugs for constipation and irritable bowel syndrome.
Chronopharmacology
Biological and circadian rhythms, applications of chronotherapy in various diseases like cardiovascular disease, diabetes, asthma and peptic ulcer. | |



- 5 Free radicals Pharmacology 12 Hrs
Generation of free radicals, role of free radicals in etiopathology of various diseases such as diabetes, neurodegenerative diseases and cancer.
Protective activity of certain important antioxidant
Recent Advances in Treatment:
Alzheimer's disease, Parkinson's disease, Cancer, Diabetes mellitus

REFERENCES

1. The Pharmacological basis of therapeutics – Goodman and Gillman's
2. Principles of Pharmacology. The Pathophysiologic basis of drug therapy by David E Golan et al.
3. Basic and Clinical Pharmacology by B.G-Katzung
4. Pharmacology by H.P.Rang and M.M. Dale.
5. Handbook of Clinical Pharmacokinetics by Gibaldi and Prescott.
6. Text book of Therapeutics, drug and disease management by E.T. Herfindal and Gourley.
7. Applied Biopharmaceutics and Pharmacokinetics by Leon Shargel and Andrew B.C.Yu.
8. Handbook of Essential Pharmacokinetics, Pharmacodynamics and Drug Metabolism for Industrial Scientists
9. Robbins & Cotran Pathologic Basis of Disease, 9th Ed. (Robbins Pathology)
10. A Complete Textbook of Medical Pharmacology by Dr. S.K.Srivastava published by APC Avichal Publishing Company.
11. KD.Tripathi, Essentials of Medical Pharmacology
12. Principles of Pharmacology. The Pathophysiologic basis of drug Therapy by David E. Golan, Armen H. Tashjian Jr, Ehrin J. Armstrong, April W. Armstrong, Wolters, Kluwer-Lippincott Williams & Wilkins Publishers



**EVALUATION OF THE INVITRO ANTIOXIDANT ACTIVITY AND
INVIVO ANTI-WRINKLE ACTIVITY OF COMBINED ETHANOLIC
EXTRACT OF LINUM USITATISSIMUM (FLAX SEED), LAVANDULA
ANGUSTIFOLIA, AND NERIUM OLEANDER ON LABORATORY
MICE**

Dissertation submitted to

AWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the award of the degree of
MASTER OF PHARMACY IN PHARMACOLOGY

Submitted by
BUNGA AMARENDRA BABU (B.PHARM)
(REG.NO:223H1S0604)

Under the Guidance of
Dr. K. Ravishankar, M. pharm, PhD.
Principal and Professor of Aditya College of Pharmacy



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CERTIFICATE

This is to certify that the investigation described in this thesis entitled **EVALUATION OF THE INVITRO ANTIOXIDANT ACTIVITY AND INVIVO ANTI-WRINKLE ACTIVITIES OF COMBINED ETHANOLIC EXTRACTS OF LINUM USITATISSIMUM (FLAX SEED), LAVANDULA ANGUSTIFOLIA, AND NERIUM OLEANDER ON LABORATORY MICE** Submitted by **BUNGA AMARENDRA BABU** (Regd. No. 223H1S0604) of Aditya college of pharmacy affiliated to Jawaharlal Nehru Technology University, Kakinada for the partial fulfillment of degree of Master of Pharmacy in pharmacology. The report embedded in this thesis was carried out under the supervision of **Dr. K. RAVISHANKAR** M. Pharm, Ph. D. Principal of Aditya College of Pharmacy, Surampalem.

*Evaluated
K. Ravishankar*

K. Ravishankar

Principal,
PRINCIPAL
Dr. K. Ravishankar M. Pharm, Ph. D.
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Aditya College of Pharmacy
SURAMPALAM

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PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS - I

(MPL 103T)

Scope

This subject is designed to impart the knowledge on preclinical evaluation of drugs and recent experimental techniques in the drug discovery and development. The subject content helps the student to understand the maintenance of laboratory animals as per the guidelines, basic knowledge of various in-vitro and in-vivo preclinical evaluation processes

Objectives

Upon completion of the course the student shall be able to,

- 1 Appraise the regulations and ethical requirement for the usage of experimental animals.
- 1 Describe the various animals used in the drug discovery process and good laboratory practices in maintenance and handling of experimental animals
- 1 Describe the various newer screening methods involved in the drug discovery process
- 1 Appreciate and correlate the preclinical data to humans

THEORY

60 Hrs

1. Laboratory Animals

12 Hrs

Common laboratory animals: Description, handling and applications of different species and strains of animals.

Transgenic animals: Production, maintenance and applications Anaesthesia 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

2. Preclinical screening of new substances for the pharmacological activity using in vivo, invitro and other possible animal alternative models.

12 Hrs

General principles of preclinical screening. CNS Pharmacology: behavioral and muscle co ordination, 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.

3. Preclinical screening of new substances for the pharmacological activity using in vivo, invitro and other possible animal alternative models.

12 Hrs

Respiratory Pharmacology: anti-asthmatics, drugs for COPD and antiallergics. Reproductive Pharmacology: Aphrodisiacs and antifertility agents Analgesics, anti-inflammatory and antipyretic agents. Gastrointestinal drugs: antiulcer, anti- emetic, anti- diarrheal and laxatives.



4. Preclinical screening of new substances for the pharmacological activity using 12 Hrs
in vivo, invitro, and other possible animal alternative models.
Cardiovascular Pharmacology: antihypertensives, antiarrhythmics, antianginal, antiatherosclerotic agents and diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anti cancer agents. Hepatoprotective screening methods.
5. Preclinical screening of new substances for the pharmacological activity 12 Hrs
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. Immuno assay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin.
Limitations of animal experimentation and alternate animal experiments. Extrapolation of invitro data to preclinical and preclinical to humans.

REFERENCES

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2. Screening methods in Pharmacology by Robert Turner.A
3. Evaluation of drugs activities by Laurence and Bachrach
4. Methods in Pharmacology by Arnold Schwartz.
5. Fundamentals of experimental Pharmacology by M.N.Ghosh
6. Pharmacological experiment on intact preparations by Churchill Livingstone
7. Drug discovery and Evaluation by Vogel H.G.
8. Experimental Pharmacology by R.K.Goyal.
9. Preclinical evaluation of new drugs by S.K.Guta
10. Handbook of Experimental Pharmacology, SK.Kulkarni
11. Practical Pharmacology and Clinical Pharmacy, SK.Kulkarni, 3rd Edition.
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13. Screening Methods in Pharmacology, Robert A.Turner.
14. Rodents for Pharmacological Experiments, Dr.Tapan Kumar chatterjee.
15. Practical Manual of Experimental and Clinical Pharmacology by Bikash Medhi (Author), AjayPrakash (Author)



EVALUATION OF THE INVIVO **ANTIDEPRESSANT** ACTIVITY AND
INVITRO ANTIOXIDANT ACTIVITIES OF ETHANOLIC LEAF EXTRACTS
OF MOMORDICA CHARANTIA

Dissertation submitted to
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of
MASTER OF PHARMACY IN PHARMACOLOGY

Submitted by
KONDAPALLI VEERA NAGA KARUNA MANI GEETHIKA
(REG.NO :223H1S0605)

Under the Guidance of
Dr. K. Ravishankar, M. Pharm, PhD.
Principal and Professor of Aditya College of Pharmacy



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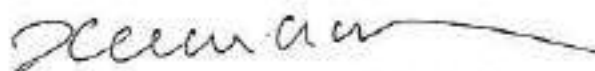
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This is to certify that the investigation described in this thesis entitled **EVALUATION OF THE INVIVO ANTIDEPRESSANT ACTIVITY AND INVITRO ANTIOXIDANT ACTIVITIES OF ETHANOLIC LEAF EXTRACTS OF MOMORDICA CHARANTIA** Submitted by **KONDAPALLI VEERA NAGA KARUNA MANI GEETHIKA** (Regd. No.223H1S0605) of Aditya college of pharmacy affiliated to Jawaharlal Nehru Technology University, Kakinada for the partial fulfillment of degree of Master of Pharmacy in pharmacology. The report embedded in this thesis was carried out under the supervision of **Dr. K. RAVISHANKAR M. Pharm, Ph. D. Principal** of Aditya College of Pharmacy, Surampalem.



Principal,

PRINCIPAL

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Dr. K. Ravishankar M. Pharm, Ph. D.

Principal and professor,

Aditya college of Pharmacy Surampalem,

East Godavari, Andhra Pradesh- 533437



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PHARMACOLOGY PRACTICAL - I (MPL 105PA)

1. Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer
2. Simultaneous estimation of multi component containing formulations by UV spectrophotometry
3. Experiments based on HPLC
4. Experiments based on Gas Chromatography
5. Estimation of riboflavin/quinine sulphate by fluorimetry
6. Estimation of sodium/potassium by flame photometry handling of laboratory animals.
7. Various routes of drug administration.
8. Techniques of blood sampling, anesthesia and euthanasia of experimental animals.
9. Functional observation battery tests (modified Irwintest)
10. Evaluation of CNS stimulant, depressant, anxiogenics and anxiolytic, anticonvulsant activity.
11. Evaluation of analgesic, anti-inflammatory, local anesthetic, mydriatic and miotic activity.
12. Evaluation of diuretic activity.
13. Evaluation of antiulcer activity by pylorus ligation method.
14. Oral glucose tolerance test.

PHARMACOLOGY PRACTICAL - II (MPL 105PB)

Handling of laboratory animals.

1. Isolation and identification of DNA from various sources (Bacteria, Cauliflower, onion, Goat liver).
2. Isolation of RNA from yeast
3. Estimation of proteins by Bradford/Lowry's in biological samples.
4. Estimation of RNA/DNA by UV Spectroscopy "
5. Gene amplification by PCR.
6. Protein quantification Western Blotting.
7. Enzyme based in-vitro assays (MPO, AChEs, α amylase, α glucosidase).
8. Cell viability assays (MTT/Trypan blue/SRB).
9. DNA fragmentation assay by agarose gel electrophoresis.
10. DNA damage study by Comet assay.
11. Apoptosis determination by fluorescent imaging studies.
12. Pharmacokinetic studies and data analysis of drugs given by different routes of administration using softwares
13. Enzyme inhibition and induction activity
14. Extraction of drug from various biological samples and estimation of drugs in biological fluids using different analytical techniques (UV)
15. Extraction of drug from various biological samples and estimation of drugs in biological fluids using different analytical techniques (HPLC)



**INVITRO AND INVIVO STUDY OF ANTI BACTERIAL AND ANTI
INFLAMMATORY ACTIVITY OF NYMPHAEA STELLATA**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the degree of
MASTER OF PHARMACY IN PHARMACOLOGY

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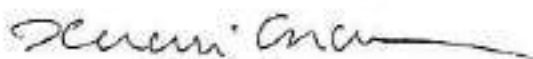
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CERTIFICATE

This is to certify that the investigation described in this thesis entitled
**"INVITRO AND INVIVO STUDY OF ANTI BACTERIAL AND ANTI
INFLAMMATORY ACTIVITY OF NYMPHAEA STELLATA"** Submitted
by **POTHULA NEELIMA** (Regd. No.223H1S0607) of Aditya college of
pharmacy (Affiliated to JNTU, Kakinada) For the partial fulfilment of Degree
of Master of Pharmacy in department of Pharmacology. The report embedded in
this thesis was carried out under the supervision of **Dr.K.Ravishankar M.**
Pharm, Ph.D. principal of Aditya college of pharmacy, Surampalem.



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PHARMACOLOGY PRACTICAL - I (MPL 105PA)

1. Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer
2. Simultaneous estimation of multi component ,containing formulations by UV spectrophotometry
3. Experiments based on HPLC
4. Experiments based on Gas Chromatography
5. Estimation of riboflavin/quinine sulphate by fluorimetry
6. Estimation of sodium/potassium by flame photometry handling of laboratory animals.
7. Various routes of drug administration.
8. Techniques of blood sampling, anesthesia and euthanasia of experimental animals.
9. Functional observation battery tests (modified Irwintest)
10. Evaluation of CNS stimulant, depressant, anxiogenics and anxiolytic, anticonvulsant activity.
11. Evaluation of analgesic, anti-inflammatory, local anesthetic, mydriatic and miotic activity.
12. Evaluation of diuretic activity.
13. Evaluation of antiulcer activity by pylorus ligation method.
14. Oral glucose tolerance test.

PHARMACOLOGY PRACTICAL - II (MPL 105PB)

Handling of laboratory animals.

1. Isolation and identification of DNA from various sources (Bacteria, Cauliflower, onion, Goat liver).
2. Isolation of RNA from yeast
3. Estimation of proteins by Bradford/Lowry's in biological samples.
4. Estimation of RNA/DNA by UV Spectroscopy
5. Gene amplification by PCR.
6. Protein quantification Western Blotting.
7. Enzyme based in-vitro assays (MPO, AChEs, α amylase, α glucosidase).
8. Cell viability assays (MTT/Trypan blue/SRB).
9. DNA fragmentation assay by agarose gel electrophoresis.
10. DNA damage study by Comet assay.
11. Apoptosis determination by fluorescent imaging studies.
12. Pharmacokinetic studies and data analysis of drugs given by different routes of administration using softwares
13. Enzyme inhibition and induction activity
14. Extraction of drug from various biological samples and estimation of drugs in biological fluids using different analytical techniques(UV)
15. Extraction of drug from various biological samples and estimation of drugs in biological fluids using different analytical techniques (HPLC)



ANTI-DIABETIC ACTIVITY OF ETHANOLIC LEAF EXTRACT OF
CASURINA EQUISETIFOLIA IN ALLOXIN INDUCED DIABETIC RATS

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY,
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In the partial fulfillment of the requirements for the Award of the degree of
MASTER OF PHARMACY IN PHARMACOLOGY

Submitted by

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This is to certify that the investigation described in this thesis entitled ANTI-DIABETIC ACTIVITY OF ETHANOLIC LEAF EXTRACT OF CASURINA EQUISETIFOLIA IN ALLOXIN INDUCED DIABETIC RATS Submitted by **VOMMU KRUPA KIRAN PAUL (Regd. No.223H1S0609)** of Aditya college of pharmacy affiliated to Jawaharlal Nehru Technology University, Kakinada for the partial fulfillment of degree of Master of Pharmacy in pharmacology. The report embedded in this thesis was carried out under the supervision of **Dr. K. RAVISHANKAR** M. Pharm, Ph. D. Principal of Aditya College of Pharmacy, Surampalem.

Kc

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Surampalem, East Godavari,
Andhra Pradesh- 533437



Aditya Nagar, ADB Road, Surampalem-533 437, Near Kakinada, E.G.D.L, A.P.

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PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS-II (MPL 202T)

Scope:

This subject imparts knowledge on the preclinical safety and toxicological evaluation of drug & new chemical entity. This knowledge will make the student competent in regulatory toxicological evaluation.

Objectives:

Upon completion of the course, the student shall be able to,

- 1 Explain the various types of toxicity studies.
- 1 Appreciate the importance of ethical and regulatory requirements for toxicity studies.
- 1 Demonstrate the practical skills required to conduct the preclinical toxicity studies.

THEORY

60 Hrs

1. Basic definition and types of toxicology (general, mechanistic, regulatory and descriptive) 12 Hrs
Regulatory guidelines for conducting toxicity studies OECD, ICH, EPA and Schedule Y
OECD principles of Good laboratory practice (GLP)
History, concept and its importance in drug development
2. Acute, sub-acute and chronic- oral, dermal and inhalational studies as per OECD guidelines. 12 Hrs
Acute eye irritation, skin sensitization, dermal irritation & dermal toxicity studies.
Test item characterization- importance and methods in regulatory toxicology studies.
3. Reproductive toxicology studies, Male reproductive toxicity studies, female reproductive studies (segment I and segment III), teratogenicity studies (segment II) 12 Hrs
Genotoxicity studies (Ames Test, in vitro and in vivo Micronucleus and Chromosomal aberrations studies)
In vivo carcinogenicity studies.
4. IND enabling studies (IND studies)- Definition of IND, importance of IND, industry perspective, list of studies needed for IND submission, 12 Hrs
Safety pharmacology studies- origin, concepts and importance of safety pharmacology.
Tier1- CVS, CNS and respiratory safety pharmacology, HERG assay, Tier2- GI, renal and other studies.
5. Toxicokinetics- Toxicokinetic evaluation in preclinical studies, saturation kinetics 12 Hrs
Importance and applications of toxicokinetic studies.
Alternative methods to animal toxicity testing.



REFERENCES

- 1 Hand book on GLP, Quality practices for regulated non-clinical research and development (<http://www.who.int/tdr/publications/documents/glp-handbook.pdf>).
- 2 Schedule Y Guideline: drugs and cosmetics (second amendment) rules, 2005, ministry of health and family welfare (department of health) New Delhi
- 3 Drugs from discovery to approval by Rick NG.
- 4 Animal models in Toxicology, 3rd Edition, Lower and Bryan
- 5 OECD test guidelines.
- 6 Principles of toxicology by Karen E. Stine, Thomas M. Brown.
- 7 Guidance for Industry M3 (R2) Nonclinical Safety Studies for the Conduct of Human Clinical Trials and Marketing Authorization for Pharmaceuticals ([http://www.fda.gov/downloads/drugs/guidance compliance regulatory information/guidances/ ucm073246.pdf](http://www.fda.gov/downloads/drugs/guidance%20compliance%20regulatory%20information/guidances/ucm073246.pdf))



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SURAMPALEM- 533 437

**EVALUATION OF ANALGESIC AND ANTIPYRETIC ACTIVITIES OF
THE ETHANOLIC FRUIT EXTRACT OF PIPER NIGRUM**

Dissertation submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA



In the partial fulfillment of the requirements for the Award of the Degree of
MASTER OF PHARMACY IN PHARMACOLOGY

Submitted by

SWATHI SANTHOSH (B.Pharm)

(Reg.no-223H150610)

Under the Guidance of

Dr.K. RAVISANKAR, M. Pharm, Ph.D

Professor and Principal of Aditya College of Pharmacy



ADITYA COLLEGE OF PHARMACY

SURAMPalem -533437

2022-2024



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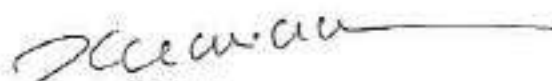
COLLEGE OF PHARMACY

Approved by AICTE & PCI - NEW DELHI, Affiliated to JNTU Kakinada
Formerly known as Sri Sai Aditya Institute of Pharmaceutical Science & Health (SASAI)

Ph: 99498 76664
Email: office@aditya.edu.in
Website: www.aditya.edu.in

CERTIFICATE

This is to certify that the investigation described in this thesis entitled "Evaluation of analgesic and antipyretic activity of the ethanolic fruit extract of Piper Nigrum" was submitted by Swathi Santhosh B. Pharm (REGD.NO: 223H1S0610) of Aditya College of Pharmacy (Affiliated to JNTU Kakinada) for the partial fulfillment of Degree of Masters of Pharmacy in the Department of Pharmacology. The Report embedded in this thesis was carried out under the Guidance of Dr.K. Ravishankar M. PHARM, Ph.D., Professor and Principal of Aditya College of Pharmacy, Surampalem.



Principal,
PRINCIPAL

Aditya College of Pharmacy

SURAMPALAM - 533 437

Dr. K. Ravishankar M.Pharm, Ph.D.

Aditya College of Pharmacy

Surampalem - 533437

Dist.: East Godavari (A.P)



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PHARMACOLOGY PRACTICAL - III
(MPL 205PA)

1. To record the DRC of agonist using suitable isolated tissues preparation.
2. To study the effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation.
3. To determine to the strength of unknown sample by matching bioassay by using suitable tissue preparation.
4. To determine to the strength of unknown sample by interpolation bioassay by using suitable tissue preparation.
5. To determine to the strength of unknown sample by bracketing bioassay by using suitable tissue preparation.
6. To determine to the strength of unknown sample by multiple point bioassay by using suitable tissue preparation.
7. Estimation of PA2 values of various antagonists using suitable isolated tissue preparations.
8. To study the effects of various drugs on isolated heart preparations.
9. Recording of rat BP, heart rate and ECG.
10. Recording of rat ECG.

PHARMACOLOGY PRACTICAL - IV
(MPL 205PB)

1. Drug absorption studies by everted rat ileum preparation.
2. Acute oral toxicity studies as per OECD guidelines.
3. Acute dermal toxicity studies as per OECD guidelines.
4. Repeated dose toxicity studies- Serum biochemical, haematological, urine analysis, functional observation tests and histological studies.
5. Drug mutagenicity study using mice bone-marrow chromosomal aberration test.
6. Protocol design for clinical trial.(3Nos.)
7. Design of ADR monitoring protocol.
8. In-silico docking studies. (2Nos.)
9. In-silico pharmacophore based screening.
10. In-silico QSAR studies.
11. ADR reporting.

REFERENCES

1. Fundamentals of experimental Pharmacology -by M.N. Ghosh
2. Handbook of Experimental Pharmacology S.K. Kalakani
3. Textbook of in-vitro practical Pharmacology by IanKitchen
4. Bioassay Techniques for Drug Development by Atta-ur-Rahman, Iqbal choudhary and William Thomsen
5. Applied Biopharmaceutics and Pharmacokinetics by Leon Shargel and Andrew B.C.Yu.
6. Handbook of Essential Pharmacokinetics, Pharmacodynamics and Drug Metabolism for Industrial Scientists.



[Signature]
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SURAMPALAM- 533 497

PHARMACOLOGY PRACTICAL - III
(MPL 205PA)

1. To record the DRC of agonist using suitable isolated tissues preparation.
2. To study the effects of antagonist/potentiating agents on DRC of agonist using suitable isolated tissue preparation.
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4. To determine to the strength of unknown sample by interpolation bioassay by using suitable tissue preparation.
5. To determine to the strength of unknown sample by bracketing bioassay by using suitable tissue preparation.
6. To determine to the strength of unknown sample by multiple point bioassay by using suitable tissue preparation.
7. Estimation of PA2 values of various antagonists using suitable isolated tissue preparations.
8. To study the effects of various drugs on isolated heart preparations.
9. Recording of rat BP, heart rate and ECG.
10. Recording of rat ECG.

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5. Applied Biopharmaceutics and Pharmacokinetics by Leon Shargel and Andrew B.C.Yu.
6. Handbook of Essential Pharmacokinetics, Pharmacodynamics and Drug Metabolism for Industrial Scientists.



2.6 PHARMACOTHERAPEUTICS - I (THEORY)

Theory : 3 Hrs. /Week

1. **Scope of the Subject:** This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases. This will enable the student to understand the pathophysiology of common diseases and their management.
2. **Objectives:** At completion of this subject it is expected that students will be able to understand –
 - a. the pathophysiology of selected disease states and the rationale for drug therapy;
 - b. the therapeutic approach to management of these diseases;
 - c. the controversies in drug therapy;
 - d. the importance of preparation of individualised therapeutic plans based on diagnosis;
 - e. needs to identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects);
 - f. describe the pathophysiology of selected disease states and explain the rationale for drug therapy;
 - g. summarise the therapeutic approach to management of these diseases including reference to the latest available evidence;
 - h. discuss the controversies in drug therapy;
 - i. discuss the preparation of individualised therapeutic plans based on diagnosis; and
 - j. identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).

Text Books

- a. Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication.
- b. Pharmacotherapy: A Pathophysiologic approach - Joseph T. Dipiro et al. Appleton & Lange.

Reference Books

- a. Pathologic basis of disease - Robins SL, W.B.Saunders publication.
- b. Pathology and therapeutics for Pharmacists: A Basis for Clinical Pharmacy Practice - Green and Harris, Chapman and Hall publication.
- c. Clinical Pharmacy and Therapeutics - Eric T. Herfindal, Williams and Wilkins Publication.
- d. Applied Therapeutics: The clinical Use of Drugs. Lloyd Young and Koda-Kimble MA
- e. Avery's Drug Treatment, 4th Edn, 1997, Adis International Limited.
- f. Relevant review articles from recent medical and pharmaceutical literature.




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3. Detailed syllabus and lecture wise schedule :

Etiopathogenesis and pharmacotherapy of diseases associated with following systems/ diseases

Title of the topic

- 1 **Cardiovascular system:** Hypertension, Congestive cardiac failure, Angina Pectoris, Myocardial infarction, Hyperlipidaemias, Electrophysiology of heart and Arrhythmias
- 2 **Respiratory system :** Introduction to Pulmonary function test, Asthma, Chronic obstructive airways disease, Drug induced pulmonary diseases
Endocrine system : Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis
- 3 **General prescribing guidelines for**
 - a. Paediatric patients
 - b. Geriatric patients
 - c. Pregnancy and breast feeding
- 4 **Ophthalmology:** Glaucoma, Conjunctivitis- viral & bacterial
- 5 **Introduction to rational drug use**
Definition, Role of pharmacist Essential drug concept Rational drug formulations

2.6 PHARMACOTHERAPEUTICS - I (PRACTICAL)

Practical : 3 Hrs./Week

Practicals :

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation. A minimum of 20 cases should be presented and recorded covering most common diseases.

Assignments :

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.



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**EFFECT OF AGE ON LUNG FUNCTIONS IN PATIENTS WITH
CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN COMPARISON
TO HEALTHY INDIVIDUALS**

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of
DOCTOR OF PHARMACY
SUBMITTED BY

BUSI GRACE HADASSAH

MAHE NAZ SHAYEED

ADABALA GAANA LAKSHMI

V.R.S.D. PADMA SRI

SWANI JAYA CHANDRA VARMA

Reg.No.143H1T0003

Reg. No.183H1T0010

Reg. No.193H1T0001

Reg. No.193H1T0002

Reg. No.193H1T0003

V Year Pharm. D (Doctor of Pharmacy)

Under the Guidance of

AMIT KUMAR, M. Pharm (Ph. D)

Associate Professor



DEPARTMENT OF PHARMACY PRACTICE

ADITYA COLLEGE OF PHARMACY

SURAMPALEM - 533437

ANDHRA PRADESH

2023 - 2024



EXTERNAL EXAMINER

Dear Sir,
Principal
Aditya College of Pharmacy
Surampalem - 533437

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• Permanently Affiliated to JNTUK, Kakinada

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E-mail: office@acop.edu.in

Web: www.acop.edu.in

Dr. K. Ravi Shankar, M. Pharm, Ph.D.

Director & Principal

CERTIFICATE

It is to certify that the dissertation work entitled "EFFECT OF AGE ON LUNG FUNCTIONS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN COMPARISON TO HEALTHY INDIVIDUALS" is submitted to the JNTU, Kakinada in partial fulfillment for the award of degree of Pharmacy. This bonafide work was carried out by Busi Grace Hadassah (193H1T0001), Mahe Naz Shayeed (183H1T0010), Adabala Gaana Lakshmi (193H1T0001), and Baswani Jaya Chandra Varma (193H1T0003) under the guidance and supervision of Mr. Amit Kumar, Associate Professor, Department of Pharmacy, Aditya College of Pharmacy, Surampalem.

Date

Place

Dr. K. Ravi Shankar
Dr. K. Ravi Shankar

Principal
PRINCIPAL

Aditya College of Pharmacy
SURAMPALEM- 533 437



Dr. K. Ravi Shankar
PRINCIPAL
Aditya College of Pharmacy
SURAMPALEM- 533 437

Aditya Nag

Surampalem-533 437, Near Kakinada, E.G.Dt., A.P.

Second year

2.1 PATHOPHYSIOLOGY (THEORY)

Theory : 3 Hrs. /Week

1. **Scope of the Subject:** This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic Pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge of its application in other subject of pharmacy.
2. **Objectives of the Subject :** Upon completion of the subject student shall be able to –
 - a. describe the etiology and pathogenesis of the selected disease states;
 - b. name the signs and symptoms of the diseases; and
 - c. mention the complications of the diseases.

Text books (Theory)

- a. Pathologic basis of disease by- Cotran, Kumar, Robbins
- b. Text book of Pathology- Harsh Mohan
- c. Text book of Pathology- Y.M. Bhinde

Reference books (Theory)

- a. Clinical Pharmacy and Therapeutics; Second edition; Roger Walker; Churchill Livingstone publication

3. Detailed syllabus and lecture wise schedule :

Chapter

- 1 **Basic principles of cell injury and Adaptation**
 - a) Causes, Pathogenesis and morphology of cell injury
 - b) Abnormalities in lipoproteinaemia, glycogen infiltration and glycogen infiltration and glycogen infiltration and glycogen storage diseases
- 2 **Inflammation**
 - a) Pathogenesis of acute inflammation, Chemical mediators in inflammation, Types of chronic inflammation
 - b) Repairs of wounds in the skin, factors influencing healing of wounds
- 3 **Diseases of Immunity**
 - a) Introduction to T and B cells
 - b) MHC proteins or transplantation antigens
 - c) Immune tolerance
 - Hypersensitivity
 - Hypersensitivity type I, II, III, IV, Biological significance, Allergy due to food, chemicals and drugs
 - Autoimmunity
 - Criteria for autoimmunity, Classifications of autoimmune diseases in man, mechanism of autoimmunity, Transplantation and immunologic tolerance, allograft rejections, transplantation antigens, mechanism of rejection of allograft.
 - Acquired immune deficiency syndrome (AIDS)



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- Amyloidosis "

- 4 **Cancer:** differences between benign and malignant tumors, Histological diagnosis of malignancy, invasions and metastasis, patterns of spread, disturbances of growth of cells, classification of tumors, general biology of tumors, spread of malignant tumors, etiology and pathogenesis of cancer.
- 5 Types of shock, mechanisms, stages and management
- 6 Biological effects of radiation
- 7 Environmental and nutritional diseases
 - i) Air pollution and smoking- SO₂, NO, NO₂, and CO
 - ii) Protein calorie malnutrition, vitamins, obesity, pathogenesis of starvation.
- 8 Pathophysiology of common diseases
 - a. Parkinsonism
 - b. Schizophrenia
 - c. Depression and mania
 - d. Hypertension
 - e. Stroke (ischaemic and hemorrhage)
 - f. Angina, CCF, Atherosclerosis, Myocardial infarction
 - g. Diabetes Mellitus
 - h. Peptic ulcer and inflammatory bowel diseases
 - i. Cirrhosis and Alcoholic liver diseases
 - j. Acute and chronic renal failure "
 - k. Asthma and chronic obstructive airway diseases
- 9 Infectious diseases :
Sexually transmitted diseases (HIV, Syphilis, Gonorrhea), Urinary tract infections, Pneumonia, Typhoid, Tuberculosis, Leprosy, Malaria Dysentery (bacterial and amoebic), Hepatitis- infective hepatitis.

4. Assignments :

Title of the Experiment

- 1 Chemical Mediators of inflammation
- 2 Drug Hypersensitivity
- 3 Cigarette smoking & its ill effects
- 4 Biological Effects of Radiation
- 5 Etiology and hazards of obesity
- 6 Complications of diabetes
- 7 Diagnosis of cancer
- 8 Disorders of vitamins
- 9 Methods in Pathology- Laboratory values of clinical significance
- 10 Pathophysiology of Dengue Hemorrhagic Fever (DHF)

Format of the assignment

- 1 Minimum & Maximum number of pages.
2. Reference(s) shall be included at the end. "
3. Assignment can be a combined presentation at the end of the academic year
4. It shall be computer draft copy.
5. Name and signature of the student
6. Time allocated for presentation may be 8+2 Min.




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EFFECTS OF MODIFIABLE VERSUS NON-MODIFIABLE RISK FACTORS ON TREATMENT OUTCOMES OF **ISCHEMIC STROKE** PATIENTS

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of

DOCTOR OF PHARMACY

SUBMITTED BY

BOBBY SAMBA

(Reg.No.193H1T0004)

CHEEPURUPALLI BHAVYA DEEPIKA

(Reg.No.193H1T0005)

DANGETI MOUJA LAHARI

(Reg.No.193H1T0006)

INAMPUDI DILEEP VARMA

(Reg.No.193H1T0007)

KARRI HARIKA

(Reg.No.193H1T0008)

V Year Pharm. D (Doctor of Pharmacy)

Under the Guidance of

Dr. DIVYA S. NAIR, PHARM.D

Assistant Professor



DEPARTMENT OF PHARMACY PRACTICE

ADITYA COLLEGE OF PHARMACY

SURAMPalem - 533437

ANDHRA PRADESH

2023-2024


INTERNAL EXAMINER




EXTERNAL EXAMINER


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Web: www.aditya.ac.in

Dr. DIVYA S. NAIR, PHARM.D

Assistant Professor

Department of Pharmacy Practice

CERTIFICATE

This is to certify that the dissertation work entitled "EFFECTS OF MODIFIABLE VERSUS NON-MODIFIABLE RISK FACTORS ON TREATMENT OUTCOMES OF ISCHEMIC STROKE PATIENTS", is submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment for the award of degree of Doctor of Pharmacy. This bonafide work was carried out by BOBBY SAMBA (193HIT0004), CHEEPURUPALLI BHAVYA DEEPIKA (193HIT0005), ANGETI MOUJA LAILARI (193HIT0006), INAMPUDI DILEEP VARMA (193HIT0007), AND ARRI HARIKA (193HIT0008) under my guidance and supervision during the academic year 2023-24.

Date: 13/3/24
Place: Surampalem


Dr. DIVYA S. NAIR
Institutional Guide

Aditya College of Pharmacy
SURAMPALEM-533 437




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Aditya Nagar, ADB Road, Surampalem-533 437, Near Kakinada, E.G.D.L, A.P.

3.2 PHARMACEUTICAL ANALYSIS (THEORY)

Theory : 3 Hrs. /Week

1. Quality Assurance:

- a. Introduction, sources of quality variation, control of quality variation.
- b. Concept of statistical quality control.
- c. Validation methods- quality of equipment, validation of equipment and validation of analytical instruments and calibration.
- d. GLP, ISO 9000.
- e. Total quality management, quality review and documentation.
- f. ICH- international conference for harmonization-guidelines.
- g. Regulatory control.

2. Chromatography:

Introduction, history, classification, separation techniques, choice of methods. The following techniques be discussed with relevant examples of pharmaceutical products involving principles and techniques of separation of drugs from excipients.

- a. **Column Chromatography:** Adsorption column chromatography, Operational technique, frontal analysis and elution analysis. Factors affecting column efficiency, applications and partition chromatography.
- b. **TLC:** Introduction, principle, techniques, R_f value and applications.
- c. **PC:** Introduction, principle, types of paper chromatography, preparation techniques, development techniques, applications.
- d. **Ion-exchange chromatography:** Introduction, principles, types of ion exchange synthetic resins, physical properties, factors affecting ion exchange, methodology and applications.
- e. **HPLC:** Introduction, theory, instrumentation, and applications.
- f. **HPTLC:** Introduction, theory, instrumentation, and applications.
- g. **Gas Chromatography:** Introduction, theory, instrumentation-carrier gases, types of columns, stationary phases in GLC & GSC. Detectors- Flame ionization detectors, electron capture detector, thermal conductivity detector. Typical gas chromatogram, derivatisation techniques, programmed temperature gas chromatography, applications.
- h. **Electrophoresis:** Principles of separation, equipment for paper and gel electrophoresis, and application.
- i. **Gel filtration and affinity chromatography:** Introduction, technique, applications.




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3. Electrometric Methods:

Theoretical aspects, instrumentation, interpretation of data/spectra and analytical applications be discussed on the following topics.

- a. **Potentiometry:** Electrical potential, electrochemical cell, reference electrodes, indicator electrodes, measurement of potential and pH, construction and working of electrodes, Potentiometric titrations, methods of detecting end point, Karl Fischer titration.
- b. **Conductometry:** Introduction, conductivity cell, conductometric titrations and applications.
- c. **Polarography:** Instrumentation, DME, residual current, diffusion current and limiting current, polarographic wave, Ilkovic's equation, Effect of oxygen on polarographic wave, Polarographic maxima and suppressors and applications.
- d. **Amperometric Titrations:** Introduction, types of electrodes used, reference and indicator electrode, instrumentation, titration procedure, advantages and disadvantages of Amperometry over potentiometry. Pharma applications.

4. Spectroscopy:

Theoretical aspects, instrumentation, elements of interpretation of data/spectra and application of analytical techniques be discussed on:

a. Absorption Spectroscopy:

- Theory of electronic, atomic and molecular spectra. Fundamental laws of photometry, Beer-Lambert's Law, application and its deviation, limitation of Beer law, application of the law to single and multiple component analysis, measurement of equilibrium constant and rate constant by spectroscopy. Spectra of isolated chromophores, auxochromes, batho-chromic shift, hypsochromic shift, hyperchromic and hypochromic effect, effect of solvent on absorption spectra, molecular structure and infrared spectra.

Instrumentation – Photometer, U.V.-Visible spectrophotometer – sources of U.V.-Visible radiations, collimating systems, monochromators, samples cells and following detectors-Photocell, Barrier layer cell, Phototube, Diode array, applications of U.V.-Visible spectroscopy in pharmacy and spectrophotometric titrations.

- **Infrared Spectroscopy:** Vibrational transitions, frequency – structure correlations, Infrared absorption bands, Instrumentation-IR spectrometer – sources of IR, Collimating systems, monochromators, sample cells, sample handling in IR spectroscopy and detectors- Thermocouple, Golay Cells, Thermistor, Bolometer, Pyroelectric detector, Applications of IR in pharmacy.



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- **Fluorimetric Analysis:** Theory, luminescence, factors affecting fluorescence, quenching, Instrumentation, Applications, fluorescent indicators, study of pharmaceutically important compounds estimated by fluorimetry.
- b. **Flame Photometry:** Theory, nebulisation, flame and flame temperature, interferences, flame spectrometric techniques and instrumentation and pharmaceutical applications.
- c. **Atomic Absorption Spectrometry:** Introduction, Theory, types of electrodes, instrumentation and applications.
- d. **Atomic Emission Spectroscopy:** Spectroscopic sources, atomic emission spectrometers, photographic and photoelectric detection.
- e. **NMR & ESR (introduction only):** Introduction, theoretical aspects and applications.
- f. **Mass Spectroscopy: (Introduction only) –** Fragmentation, types of ions produced mass spectrum and applications.
- g. **Polarimetry: (Introduction only) –** Introduction to optical rotatory dispersion, circular dichroism, polarimeter.
- h. **X-RAY Diffraction: (Introduction only) –** Theory, reciprocal lattice concept, diffraction patterns and applications.
- i. **Thermal Analysis:** Introduction, instrumentation, applications, and DSC and DTA.

3.2 PHARMACEUTICAL ANALYSIS (PRACTICAL)

Practical : 3 Hrs./Week

List of Experiments:

1. Separation and identification of Amino Acids by Paper Chromatography.
2. Separation and identification of Sulpha drugs by TLC technique.
3. Effect of pH and solvent on the UV spectrum of given compound.
4. Comparison of the UV spectrum of a compound with that of its derivatives.
5. Determination of dissociation constant of indicators using UV-Visible spectroscopy.
6. Conductometric titration of mixture of acids with a strong base.
7. Potentiometric titration of an acid with a strong base.
8. Estimation of drugs by Fluorimetric technique.
9. Study of quenching effect in fluorimetry.
10. Colourimetric estimation of Sulpha drugs using BMR reagent.




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COMPARATIVE STUDY OF **LEVOSALBUTAMOL-IPRATROPIUM**
BROMIDE COMBINATION VS. LEVOSALBUTAMOL
MONOTHERAPY IN OBSTRUCTIVE PULMONARY DISEASES.

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of
DOCTOR OF PHARMACY
SUBMITTED BY

KELANGI ADARSH
KOYYURU KRANTHI KIRAN
MOLLETI VIJAYRAJ KUMAR
NADIPALLI ANNIE CHRISTINE
NEKKANTI P KRISHNA RAJESWARI CHOWDARY

(Reg. No.193H1T0009)
(Reg. No.193H1T0010)
(Reg. No.193H1T0011)
(Reg. No.193H1T0012)
(Reg. No.193H1T0013)

V Year Pharm. D (Doctor of Pharmacy)
Under the Guidance of

Clinical Guide:

Dr. Somanath Dash MD, FCCP
Professor and HOD
Department of Respiratory Medicine
GSL Medical College & General Hospital

Academic Guide:

Dr. Amulya Kara PHARM.D
Assistant Professor
Department of Pharmacy Practice
Aditya College of Pharmacy



DEPARTMENT OF PHARMACY PRACTICE
ADITYA COLLEGE OF PHARMACY
SURAMPALEM - 533437
ANDHRA PRADESH

2023 - 2024

Signature
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Dr. K. Ravi Shankar, M. Pharm, Ph.D
Director & Principal

CERTIFICATE

This is to certify that the dissertation work entitled "COMPARATIVE STUDY OF LEVOSALBUTAMOL-IPRATROPIUM BROMIDE COMBINATION VS. LEVOSALBUTAMOL MONOTHERAPY IN OBSTRUCTIVE PULMONARY DISEASES", is submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment for the award of degree of Doctor of Pharmacy. This bonafide work was carried out by Kelangi Adarsh (193H1T0009), Koyyuru Kranthi Kiran (193H1T0010), Molleti Vijayraj Kumar (193H1T0011), Nadipalli Annie Christine (193H1T0012) and Nekkanti P Krishna Rajeswari Chowdary (193H1T0013) under the able guidance and supervision of Dr. Amulya Kara, Assistant Professor, Department of Pharmacy Practice, Aditya College of Pharmacy, Surampalem.

Amulya Kara
Place: Surampalem

K. Ravi Shankar

Dr. K. Ravi Shankar

Principal

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Amulya Kara
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4.4 BIOSTATISTICS AND RESEARCH METHODOLOGY (THEORY)

Theory : 2 Hrs./Week

1. Detailed syllabus and lecture wise schedule

1 Research Methodology

- a) Types of clinical study designs:
Case studies, observational studies, interventional studies,
- b) Designing the methodology
- c) Sample size determination and Power of a study
Determination of sample size for simple comparative experiments, determination of sample size to obtain a confidence interval of specified width, power of a study
- d) Report writing and presentation of data

2 Biostatistics

2.1 a) Introduction

- b) Types of data distribution
- c) Measures describing the central tendency distributions- average, median, mode
- d) Measurement of the spread of data-range, variation of mean, standard deviation, variance, coefficient of variation, standard error of mean.

2.2 Data graphics

Construction and labeling of graphs, histogram, piecharts, scatter plots, semilogarithmic plots

2.3 Basics of testing hypothesis

- a) Null hypothesis, level of significance, power of test, P value, statistical estimation of confidence intervals.
- b) Level of significance (Parametric data)- students t test (paired and unpaired), chi Square test, Analysis of Variance (one-way and two-way)
- c) Level of significance (Non-parametric data)- Sign test, Wilcoxon's signed rank test, Wilcoxon rank sum test, Mann Whitney U test, Kruskal-Wallis test (one way ANOVA)
- d) Linear regression and correlation- Introduction, Pearson's and Spearman's correlation and correlation co-efficient.
- e) Introduction to statistical software: SPSS, Epi Info, SAS.




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2.4 Statistical methods in epidemiology

Incidence and prevalence, relative risk, attributable risk

3. Computer applications in pharmacy

Computer System in Hospital Pharmacy: Patterns of Computer use in Hospital Pharmacy – Patient record database management, Medication order entry – Drug labels and list – Intravenous solution and admixture, patient medication profiles, Inventory control, Management report & Statistics.

Computer In Community Pharmacy

Computerizing the Prescription Dispensing process

Use of Computers for Pharmaceutical Care in community pharmacy

Accounting and General ledger system

Drug Information Retrieval & Storage :

Introduction – Advantages of Computerized Literature Retrieval

Use of Computerized Retrieval

Reference books:

- Pharmaceutical statistics- practical and clinical applications, Sanford Bolton 3rd edition, publisher Marcel Dekker Inc. New York.
- Drug Information- A Guide for Pharmacists, Patrick M Malone, Karen L Kier, John E Stanovich, 3rd edition, McGraw Hill Publications 2006



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**AN OBSERVATIONAL STUDY ON INCIDENCE
OF ACUTE PANCREATITIS IN DIFFERENT AGE
GROUPS AND ASSOCIATED RISK FACTORS.**

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of
DOCTOR OF PHARMACY
SUBMITTED BY

PARASH NIROULA
PRINCE KUMAR YADAV
RUTENDO MOLEEN MAUSTA
AKURTHI SAI VIJAY KUMAR
ANIPINI SRI LAKSHMI

(Reg. No.193H1T0014)
(Reg. No.193H1T0015)
(Reg. No.193H1T0016)
(Reg. No.193H1T0017)
(Reg. No.193H1T0019)

V Year Pharm. D (Doctor of Pharmacy)
Under the Guidance of

Client: Guide:
Dr. RIHARI BABU MBBS, MD
Prof. of medicine and additional superintendent
Dep. of General Medicine
GSL College & General Hospital

Academic Guide:
Dr. P. Vineela PHARM.D
Assistant Professor
Department of Pharmacy Practice
Aditya College of Pharmacy



**DEPARTMENT OF PHARMACY PRACTICE
ADITYA COLLEGE OF PHARMACY
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ANDHRA PRADESH**

2023 - 2024



Dr. P. Vineela
Aditya College of Pharmacy
SURAMPALEM - 533 437

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Dr. K. Ravi Shankar, M. Pharm, Ph.D.

Director & Principal

CERTIFICATE

This is to certify that the dissertation work entitled "AN OBSERVATIONAL STUDY ON INCIDENCE OF ACUTE PANCREATITIS IN DIFFERENT AGE GROUPS AND ASSOCIATED RISK FACTORS", is submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment for the award of degree of Doctor of Pharmacy. This bonafide work was carried out by Parash Niroula (193H1T0014), Prince Kumar Yadav (193H1T0015), Rutendo Moleen Mausta (193H1T0016), Rakurthi Sai Vijay Kumar (193H1T0017) and Sanipini Sri Lakshmi (193H1T0019) under the able guidance and supervision of Dr. P. VINEELA, Assistant Professor, Department of Pharmacy Practice, Aditya College of Pharmacy, Surampalem.

Date: 13-03-2014

Place: Surampalem

Dr. K. Ravi Shankar

Principal-PRINCIPAL
Aditya College of Pharmacy
SURAMPALEM-533 437



Sanipini Sri Lakshmi
Sanipini Sri Lakshmi
Aditya College of Pharmacy
SURAMPALEM-533 437



2.5 COMMUNITY PHARMACY (THEORY)

Theory : 2 Hrs. /Week

- 1. Scope:** In the changing scenario of pharmacy practice in India, Community Pharmacists are expected to offer various pharmaceutical care services. In order to meet this demand, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counselling, health screening services for improved patient care in the community set up.
- 2. Objectives:** Upon completion of the course, the student shall be able to –
 - a. know pharmaceutical care services;
 - b. know the business and professional practice management skills in community pharmacies;
 - c. do patient counselling & provide health screening services to public in community pharmacy;
 - d. respond to minor ailments and provide appropriate medication;
 - e. show empathy and sympathy to patients; and
 - f. appreciate the concept of Rational drug therapy.

Text Books:

- a. Health Education and Community Pharmacy by N.S.Parmar.
- b. WHO consultative group report.
- c. Drug store & Business management by Mohammed Ali & Jyoti.

Reference books:

- a. Handbook of pharmacy – health care. Edt. Robin J Harman. The Pharmaceutical press.
- b. Comprehensive Pharmacy Review – Edt. Leon Shargel. Lippincott Williams & Wilkins.

Special requirements:

1. Either the college is having model community pharmacy (meeting the schedule N requirement) or sign MoU with at least 4-5 community pharmacies nearby to the college for training the students on dispensing and counselling activities.
2. Special equipments like B.P apparatus, Glucometer, Peak flow meter, and apparatus for cholesterol estimation.

3. Scheme of evaluation (80 Marks)

- | | |
|--|----|
| 1. Synopsis | 10 |
| 2. Major Experiment | 30 |
| (Counselling of patients with specific diseases – emphasis should be given on Counselling introduction, content, process and conclusion) | |
| 3. Minor Experiment (Ability to measure B.P/ CBG / Lung function) | 15 |
| 4. Prescription Analysis (Analyzing the prescriptions for probable drug interaction and ability to tell the management) | 15 |
| 5. Viva – Voce | 10 |




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4. Lecture wise programme :

Topics

- 1 **Definition, scope, of community pharmacy**
Roles and responsibilities of Community pharmacist
- 2 **Community Pharmacy Management**
 - a) Selection of site, Space layout, and design
 - b) Staff, Materials- coding, stocking
 - c) Legal requirements
 - d) Maintenance of various registers
 - e) Use of Computers: Business and health care soft wares
- 3 **Prescriptions** – parts of prescription, legality & identification of medication related problems like drug interactions.
- 4 **Inventory control in community pharmacy**
Definition, various methods of Inventory Control, ABC, VED, EOQ, Lead time, safety stock
- 5 **Pharmaceutical care**
Definition and Principles of Pharmaceutical care.
- 6 **Patient counselling**
Definition, outcomes, various stages, barriers, Strategies to overcome barriers
Patient information leaflets- content, design, & layouts, advisory labels
- 7 **Patient medication adherence**
Definition, Factors affecting medication adherence, role of pharmacist in improving the adherence.
- 8 **Health screening services**
Definition, importance, methods for screening
Blood pressure/ blood sugar/ lung function and Cholesterol testing
- 9 **OTC Medication- Definition, OTC medication list & Counselling**
- 10 **Health Education**
WHO Definition of health, and health promotion, care for children, pregnant & breast feeding women, and geriatric patients.
Commonly occurring Communicable Diseases, causative agents, Clinical presentations and prevention of communicable diseases – Tuberculosis, Hepatitis, Typhoid, Amoebiasis, Malaria, Leprosy, Syphilis, Gonorrhea and AIDS
Balance diet, and treatment & prevention of deficiency disorders
Family planning – role of pharmacist
- 11 **Responding to symptoms of minor ailments**
Relevant pathophysiology, common drug therapy to, Pain, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhea, constipation), Pyrexia, Ophthalmic symptoms, worms infestations.
- 12 **Essential Drugs concept and Rational Drug Therapy**
Role of community pharmacist
- 13 **Code of ethics for community pharmacists**




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**STUDY ON RISK FACTORS FOR PREECLAMPSIA IN PREGNANT WOMEN IN A
TERTIARY CARE HOSPITAL**

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of
DOCTOR OF PHARMACY
SUBMITTED BY

SHAIK. RESHMA	(Reg. No.193H1T0020)
SHAIK. SAFIYA MOHIDDIN :	(Reg. No.193H1T0021) :
SHIPRAH ZULU UPAMO	(Reg. No.193H1T0022)
SURLA. POOJITHA	(Reg. No.193H1T0023)
UPPE. ROSHINI	(Reg. No.193H1T0024)

V Year Pharm. D (Doctor of Pharmacy)
Under the Guidance of
AMIT KUMAR, M. Pharm. (Ph.D.)
Associate Professor



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2023 - 2024



Sumit
Principal
Aditya College of Pharmacy
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Director & Principal

CERTIFICATE

This is to certify that the dissertation work entitled "STUDY ON RISK FACTORS FOR PREECLAMPSIA IN PREGNANT WOMEN IN A TERTIARY CARE HOSPITAL" is submitted to the Jawaharlal Nehru Technological University, Kakinada in partial fulfillment for the award of degree of Doctor of Pharmacy. This bonafide work was carried out by Shaik. Reshma (Reg. No.193H1T0020), Shaik Safiya Mohiddin (Reg.No.193H1T0021), Shiphrab Zulu (Reg. No.193H1T0022), Surla. Poojitha (Reg. No.193H1T0023), and Uppe. Roshini (Reg. No.193H1T0024) under the able guidance and supervision of Mr. Amit Kumar, Associate Professor, Department of Pharmacy Practice, Aditya College of Pharmacy, Surampalem.


Dr. K. Ravi Shankar

Principal

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3.3 PHARMACOTHERAPEUTICS - II (THEORY)

Theory : 3 Hrs. /Week

1. **Scope of the Subject:** This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases. This will enable the student to understand the pathophysiology of common diseases and their management.
2. **Objectives of the Subject** Upon completion of the subject student shall be able to –
 - a. know the pathophysiology of selected disease states and the rationale for drug therapy
 - b. know the therapeutic approach to management of these diseases;
 - c. know the controversies in drug therapy;
 - d. know the importance of preparation of individualised therapeutic plans based on diagnosis; and
 - e. appreciate the needs to identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).

Text books (Theory)

Clinical Pharmacy and Therapeutics - Roger and Walker, Churchill Livingstone publication

Reference books (Theory)

- a. Pharmacotherapy: A Pathophysiologic approach - Joseph T. Dipiro et al. Appleton & Lange
- b. Clinical Pharmacy and Therapeutics - Eric T. Herfindal, Williams and Wilkins Publication
- c. Applied Therapeutics: The clinical Use of Drugs. Lloyd Young and Koda-Kimble MA]

3. Detailed syllabus and lecture wise schedule :

Etiopathogenesis and pharmacotherapy of diseases associated with following systems / diseases –

Title of the topic

1. **Infectious disease:** Guidelines for the rational use of antibiotics and surgical Prophylaxis, Tuberculosis, Meningitis, Respiratory tract infections, Gastroenteritis, Endocarditis, Septicemia, Urinary tract infections, Protozoal infection- Malaria, HIV & Opportunistic infections, Fungal infections, Viral infections, Gonorrhoea and Syphilis
2. **Musculoskeletal disorders**
Rheumatoid arthritis, Osteoarthritis, Gout, Spondylitis, Systemic lupus erythematosus.
3. **Renal system**
Acute Renal Failure, Chronic Renal Failure, Renal Dialysis, Drug induced renal disorders



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- 4 **Oncology:** Basic principles of Cancer therapy, General introduction to cancer chemotherapeutic agents, Chemotherapy of breast cancer, leukemia. Management of chemotherapy nausea and emesis
- 5 **Dermatology:** Psoriasis, Scabies, Eczema, Impetigo

3.3 PHARMACOTHERAPEUTICS – II (PRACTICAL)

Practical : 3 Hrs./Week

Practicals :

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation.

The student shall be trained to understand the principle and practice involved in selection of drug therapy including clinical discussion.

A minimum of 20 cases should be presented and recorded covering most common diseases.

Assignments :

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.

Format of the assignment :

1. Minimum & Maximum number of pages.
2. Reference(s) shall be included at the end.
3. Assignment can be a combined presentation at the end of the academic year.
4. It shall be computer draft copy.
5. Name and signature of the student.
6. Time allocated for presentation may be 8+2 Min.

Scheme of Practical Examination :

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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**A STUDY ON PRE-OPERATIVE ANTIBIOTIC PROPHYLAXIS FOR WOMEN
POSTED FOR HYSTERECTOMY AND IT'S COMPLICATIONS IN TERTIARY CARE
HOSPITALS.**

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of

DOCTOR OF PHARMACY

SUBMITTED BY

GEETHIKA VARDHANAPU

(Reg. No.193H1T0025)

SAI SRINIDHI VISWANADHAPALLI

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DHANYA SIRI SINGARI

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(Reg. No.193H1T0029)

LAKSHMI PADMINI PEDDINTI

(Reg. No.193H1T0030)

V Year Pharm. D (Doctor of Pharmacy)

Under the Guidance of

Dr. ANJU K ABRAHAM, PHARM.D.

Assistant Professor



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ANDHRA PRADESH

APRIL 2024

[Signature]
INTERNAL EXAMINER

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EXTERNAL EXAMINER



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Dr. K. Ravi Shankar, *M. Pharm. Ph.D.*

Director & Principal

CERTIFICATE

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Date: 21-03-2024

Place: Surampalem



K. Ravi Shankar
Dr. K. Ravi Shankar

Principal
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SURAMPALAM-533 437

Anju K Abraham
PRINCIPAL
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4.2 HOSPITAL PHARMACY (THEORY)

Theory : 2 Hrs. /Week

- 1. Scope:** In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug dispensing, manufacturing of parenteral preparations, drug information, patient counselling, and therapeutic drug monitoring for improved patient care.
- 2. Objectives:** Upon completion of the course, the student shall be able to –
 - a. know various drug distribution methods;
 - b. know the professional practice management skills in hospital pharmacies;
 - c. provide unbiased drug information to the doctors;
 - d. know the manufacturing practices of various formulations in hospital set up;
 - e. appreciate the practice based research methods; and
 - f. appreciate the stores management and inventory control.

Text books: (latest editions)

- a. Hospital pharmacy by William .E. Hassan
- b. A text book of Hospital Pharmacy by S.H.Merchant & Dr. J.S. Qadry. Revised by R.K.Goyal & R.K. Parikh

References:

- a. WHO consultative group report.
- b. R.P.S. Vol.2, Part-B; Pharmacy Practice section.
- c. Handbook of pharmacy – health care. Edt. Robin J Harman. The Pharmaceutical press.

3. Lecture wise programme :

Topics

- 1 Hospital - Its Organisation and functions**
- 2 Hospital pharmacy-Organisation and management**
 - a) Organizational structure-Staff, Infrastructure & work load statistics
 - b) Management of materials and finance
 - c) Roles & responsibilities of hospital pharmacist
- 3 The Budget – Preparation and implementation**
- 4 Hospital drug policy**
 - a) Pharmacy and Therapeutic committee (PTC)
 - b) Hospital formulary
 - c) Hospital committees
 - Infection committee
 - Research and ethical committee
 - d) developing therapeutic guidelines
 - e) Hospital pharmacy communication - Newsletter



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**STUDY ON WOMEN WITH THE POLYCYSTIC OVARY
SYNDROME AND THEIR HEALTH RELATED QUALITY OF
LIFE BY CONFIRMATORY ANALYSIS**

A Project Report Submitted to Jawaharlal Nehru Technological University, Kakinada



In partial fulfillment of the requirements of the award of degree of
DOCTOR OF PHARMACY
SUBMITTED BY

VELISETTI KRANTHI SWAROOPA	(193H1T0031)
SATHVIKA PILLADI	(193H1T0032)
SANNIDHIRAJU VBSRN INDRAJA	(193H1T0033)
VANKADAVATH MALLIKARJUNA NAYAK	(193H1T0034)

V Year Pharm. D (Doctor of Pharmacy)

Under the Guidance of

Amit Kumar, M. Pharm, (Ph.D.)

Associate Professor, H.O.D

Department of Pharmacy Practice



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[Signature]
Dr. K. Ravi Shankar

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1.1 HUMAN ANATOMY & PHYSIOLOGY (PRACTICAL)

Practical : 3 Hrs./Week

General Requirements: Dissection box, Laboratory Napkin, muslin cloth, record, Observation book(100pages), Stationary items, Blood lancet.

Course materials:

Text books

Goyal, R. K, Natvar M.P, and Shah S.A, Practical anatomy, physiology and biochemistry, latest edition, Publisher: B.S Shah Prakashan, Ahmedabad.

Reference books

Ranade VG, Text book of practical physiology, Latest edition, Publisher: PVG, Pune
Anderson Experimental Physiology, Latest edition, Publisher: NA

List of Experiments:

1. Study of tissues of human body
 - (a) Epithelial tissue.
 - (b) Muscular tissue.
2. Study of tissues of human body
 - (a) Connective tissue.
 - (b) Nervous tissue.
3. Study of appliances used in hematological experiments.
4. Determination of W.B.C. count of blood.
5. Determination of R.B.C. count of blood.
6. Determination of differential count of blood.
7. Determination of
 - (a) Erythrocyte Sedimentation Rate.
 - (b) Hemoglobin content of Blood.
 - (c) Bleeding time & Clotting time.
8. Determination of
 - (a) Blood Pressure.
 - (b) Blood group.
9. Study of various systems with the help of charts, models & specimens
 - (a) Skeleton system part I-axial skeleton.
 - (b) Skeleton system part II- appendicular skeleton.
 - (c) Cardiovascular system.
 - (d) Respiratory system.




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- (e) Digestive system.
- (f) Urinary system.
- (g) Nervous system.
- (h) Special senses.
- (i) Reproductive system.

10. Study of different family planning appliances.
11. To perform pregnancy diagnosis test.
12. Study of appliances used in experimental physiology.
13. To record simple muscle curve using gastrocnemius sciatic nerve preparation.
14. To record simple summation curve using gastrocnemius sciatic nerve preparation.
15. To record simple effect of temperature using gastrocnemius sciatic nerve preparation.
16. To record simple effect of load & after load using gastrocnemius sciatic nerve preparation.
17. To record simple fatigue curve using gastrocnemius sciatic nerve preparation.

Scheme of Practical Examination:

	Sessionals	Annual
Identification	04	10
Synopsis	04	10
Major Experiment	07	20
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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LAB

Attendance of Students in

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Date	Temp.		Wind		Rain		Humidity		Barometer		Direction		Remarks																																																																													
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- 7 Biphase dosage forms: Suspensions and emulsions, Definition, advantages and disadvantages, classification, test for the type of emulsion, formulation, stability and evaluation.
- 8 Suppositories and pessaries: Definition, advantages and disadvantages, types of base, method of preparation, Displacement value and evaluation.
- 9 Galenicals: Definition, equipment for different extraction processes like infusion, Decoction, Maceration and Percolation, methods of preparation of spirits, tinctures and extracts.
- 10 Pharmaceutical calculations.
- 11 Surgical aids: Surgical dressings, absorbable gelatin sponge, sutures, ligatures and medicated bandages.
- 12 Incompatibilities: Introduction, classification and methods to overcome the incompatibilities.

1.2 PHARMACEUTICS (PRACTICAL)

Practical : 3 Hrs./Week

List of Experiments:

1. **Syrups**
 - a. Simple Syrup IP
 - b. Syrup of Ephedrine HCl NF
 - c. Syrup Vasaka IP
 - d. Syrup of ferrous Phosphate IP
 - e. Orange Syrup
2. **Elixir**
 - a. Piperizine citrate elixir BP
 - b. Cascara elixir BPC
 - c. Paracetamol elixir BPC
3. **Linctus**
 - a. Simple Linctus BPC
 - b. Pediatric simple Linctus BPC
4. **Solutions**
 - a. Solution of cresol with soap IP
 - b. Strong solution of ferric chloride BPC
 - c. Aqueous Iodine Solution IP
 - d. Strong solution of Iodine IP
 - e. Strong solution of ammonium acetate IP




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5. **Liniments**
 - a. Liniment of turpentine IP*
 - b. Liniment of camphor IP
6. **Suspensions***
 - a. Calamine lotion
 - b. Magnesium Hydroxide mixture BP "
7. **Emulsions***
 - a. Cod liver oil emulsion
 - b. Liquid paraffin emulsion
8. **Powders***
 - a. Eutectic powder
 - b. Explosive powder
 - c. Dusting powder
 - d. Insufflations
9. **Suppositories***
 - a. Boric acid suppositories
 - b. Chloral suppositories
10. **Incompatibilities**
 - a. Mixtures with Physical
 - b. Chemical & Therapeutic incompatibilities

* colourless bottles required for dispensing * Paper envelope (white), butter paper and white paper required for dispensing.

Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).



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1.2 PHARMACAUTICS PRACTICAL

ATTENDANCE OF STUD		APPEARANCE OF STUDENTS IN		PRACTICAL CLASS																																	
Sl. No.	Roll No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Sl. No.	Roll No.	1	2	3	4
21817000	MULAN KARTHIKAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	CHINTANILAL AMBAGUDDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	DEEPAK K. K. K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	LAD RAGHUNATH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	M. M. M. M. M. M.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	M. R. R. R. R. R. R.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MAHENDRA K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
21817000	MATHAN K. K. K.	1	2	3	4	5	6	7	8	9	10	11	12</																								

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PRACTICAL CLASSES

Page No.	Name of the Party	2011-12										2012-13										Total	% of Total	No. of Seats	No. of Members																																																																												
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233817001	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
233817002	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
233817003	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
233817004	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
233817005	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
233817006	MAHARAJA PRASAD DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																																																																																					



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1.3 MEDICINAL BIOCHEMISTRY (PRACTICAL)

Practical : 3 Hrs./Week

Title of the Experiment:

- 1 Qualitative analysis of normal constituents of urine.*
 - 2 Qualitative analysis of abnormal constituents of urine.*
 - 3 Quantitative estimation of urine sugar by Benedict's reagent method.**
 - 4 Quantitative estimation of urine chlorides by Volhard's method.**
 - 5 Quantitative estimation of urine creatinine by Jaffe's method.**
 - 6 Quantitative estimation of urine calcium by precipitation method.**
 - 7 Quantitative estimation of serum cholesterol by Libermann Burchard's method.**
 - 8 Preparation of Folin Wu filtrate from blood.*
 - 9 Quantitative estimation of blood creatinine.**
 - 10 Quantitative estimation of blood sugar Folin- Wu tube method.**
 - 11 Estimation of SGOT in serum.**
 - 12 Estimation of SGPT in serum.**
 - 13 Estimation of Urea in Serum.**
 - 14 Estimation of Proteins in Serum.**
 - 15 Determination of serum bilirubin**
 - 16 Determination of Glucose by means of Glucoseoxidase.**
 - 17 Enzymatic hydrolysis of Glycogen/Starch by Amylases.**
 - 18 Study of factors affecting Enzyme activity. (pH & Temp.)**
 - 19 Preparation of standard buffer solutions and its pH measurements (any two)*
 - 20 Experiment on lipid profile tests**
 - 21 Determination of sodium, calcium and potassium in serum.**
- ** indicate major experiments & * indicate minor experiments

Assignments:

Format of the assignment

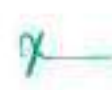
1. Minimum & Maximum number of pages.
2. It shall be computer draft copy.
3. Reference(s) shall be included at the end.
4. Name and signature of the student.
5. Assignment can be a combined presentation at the end of the academic year.
6. Time allocated for presentation may be 8+2 Min.

Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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- 12 Mechanism of aldol condensation, claisen condensation, cannizzaro reaction, crossed aldol condensation, crossed cannizzaro reaction, benzoin condensation, perkin condensation, Knoevenagel, Reformatsky reaction, Wittig reaction, Michael addition.
- 13 Hoffman rearrangement: Migration to electron deficient nitrogen, Sandmeyer's reaction, basicity of amines, diazotisation and coupling, acidity of phenols, Williamson synthesis, Fries rearrangement, Kolbe reaction, Reimer tieman's reactions.
- 14 Nucleophilic aromatic substitution: Bimolecular displacement mechanisms, orientation, comparison of aliphatic nucleophilic substitution with that of aromatic.
- 15 Oxidation reduction reaction.
- 16 Study of the following official compounds- preparation, test for purity, assay and medicinal uses of Chlorbutol, Dimercaprol, Glyceryl trinitrate, Urea, Ethylene diamine dihydrate, Vanillin, Paraldehyde, Ethylene chloride, Lactic acid, Tartaric acid, citric acid, salicylic acid, aspirin, methyl salicylate, ethyl benzoate, benzyl benzoate, dimethyl pthalate, sodium lauryl sulphate, saccharin sodium, mephensin.

1.4 PHARMACEUTICAL ORGANIC CHEMISTRY (PRACTICAL)

Practical : 3 Hrs./Week

- I. Introduction to the various laboratory techniques through demonstration involving synthesis of the following compounds (at least 8 compounds to be synthesised):
 1. Acetanilide / aspirin (Acetylation)
 2. Benzanilide / Phenyl benzoate (Benzoylation)
 3. P-bromo acetanilide / 2,4,6 – tribromo aniline (Bromination)
 4. Dibenzylidene acetone (Condensation)
 5. 1-Phenylazo-2-naphthol (Diazotisation and coupling)
 6. Benzoic acid / salicylic acid (Hydrolysis of ester)
 7. M-dinitro benzene (Nitration)
 8. 9, 10 – Anthraquinone (Oxidation of anthracene) / preparation of benzoic acid from toluene or benzaldehyde
 9. M-phenylene diamine (Reduction of M-dinitrobenzene) / Aniline from nitrobenzene
 10. Benzophenone oxime
 11. Nitration of salicylic acid
 12. Preparation of picric acid
 13. Preparation of O-chlorobenzoic acid from O-chlorotoluene
 14. Preparation of cyclohexanone from cyclohexanol



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II. Identification of organic compounds belonging to the following classes by :

Systematic qualitative organic analysis including preparation of derivatives
Phenols, amides, carbohydrates, amines, carboxylic acids, aldehyde and ketones,
Alcohols, esters, hydrocarbons, anilides, nitrocompounds.

III. Introduction to the use of stereo models:

Methane, Ethane, Ethylene, Acetylene, Cis alkene, Trans alkene, inversion of configuration.

Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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Attendance of Students in PRACTICAL CLASSES

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- 16 Essential Trace elements
- 17 Antimicrobials
- 18 Pharmaceutical aids
- 19 Dental Products
- 20 Miscellaneous compounds
- 21 Radio Pharmaceuticals

1.5 PHARMACEUTICAL INORGANIC CHEMISTRY (PRACTICAL)

Practical : 3 Hrs./Week

1. Limit test (6 exercises)
 - a. Limit test for chlorides
 - b. Limit test for sulphates
 - c. Limit test for iron
 - d. Limit test for heavy metals
 - e. Limit test for arsenic
 - f. Modified limit tests for chlorides and sulphates
2. Assays (10 exercises)
 - a. Ammonium chloride- Acid-base titration
 - b. Ferrous sulphate- Cerimetry
 - c. Copper sulphate- Iodometry
 - d. Calcium gluconate- Complexometry
 - e. Hydrogen peroxide – Permanganometry
 - f. Sodium benzoate – Nonaqueous titration
 - g. Sodium chloride – Modified volhard's method
 - h. Assay of KI – KIO_3 titration
 - i. Gravimetric estimation of barium as barium sulphate
 - j. Sodium antimony gluconate or antimony potassium tartarate
3. Estimation of mixture (Any two exercises)
 - a. Sodium hydroxide and sodium carbonate
 - b. Boric acid and Borax
 - c. Oxalic acid and sodium oxalate
4. Test for identity (Any three exercises)
 - a. Sodium bicarbonate
 - b. Barium sulphate
 - c. Ferrous sulphate
 - d. Potassium chloride




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5. Test for purity (Any two exercises)

- Swelling power in Bentonite
- Acid neutralising capacity in aluminium hydroxide gel
- Ammonium salts in potash alum
- Adsorption power heavy Kaolin
- Presence of Iodates in KI

6. Preparations (Any two exercises)

- Boric acids
- Potash alum
- Calcium lactate
- Magnesium sulphate

Scheme of Practical Examination :

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment I&2	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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Attendance of Students in CONCEPTUAL CLASSES

Regd No	Name of the person	Age	Sex	Religion	Marital Status	Occupation	Education	Income	Assets	Liabilities	Net Worth	Remarks
228117001	SHIV KUMAR SHARMA	45	M	Hindu	Married	Business	High School	15000	10000	5000	10000	
228117002	RAJESH KUMAR SHARMA	42	M	Hindu	Married	Business	High School	12000	8000	4000	8000	
228117003	ANITA KUMAR SHARMA	40	F	Hindu	Married	Business	High School	10000	7000	3000	7000	
228117004	RAHUL KUMAR SHARMA	38	M	Hindu	Married	Business	High School	8000	6000	2000	6000	
228117005	SHRUTI KUMAR SHARMA	35	F	Hindu	Married	Business	High School	7000	5000	2000	5000	
228117006	ANIL KUMAR SHARMA	32	M	Hindu	Married	Business	High School	6000	4000	2000	4000	
228117007	SHRUTI KUMAR SHARMA	30	F	Hindu	Married	Business	High School	5000	3000	2000	3000	
228117008	ANIL KUMAR SHARMA	28	M	Hindu	Married	Business	High School	4000	2000	2000	2000	
228117009	SHRUTI KUMAR SHARMA	25	F	Hindu	Married	Business	High School	3000	1000	2000	1000	
228117010	ANIL KUMAR SHARMA	22	M	Hindu	Married	Business	High School	2000	1000	1000	1000	
228117011	SHRUTI KUMAR SHARMA	20	F	Hindu	Married	Business	High School	1000	500	500	500	
228117012	ANIL KUMAR SHARMA	18	M	Hindu	Married	Business	High School	500	200	300	200	
228117013	SHRUTI KUMAR SHARMA	16	F	Hindu	Married	Business	High School	200	100	100	100	
228117014	ANIL KUMAR SHARMA	14	M	Hindu	Married	Business	High School	100	50	50	50	
228117015	SHRUTI KUMAR SHARMA	12	F	Hindu	Married	Business	High School	50	20	30	20	
228117016	ANIL KUMAR SHARMA	10	M	Hindu	Married	Business	High School	20	10	10	10	
228117017	SHRUTI KUMAR SHARMA	8	F	Hindu	Married	Business	High School	10	5	5	5	
228117018	ANIL KUMAR SHARMA	6	M	Hindu	Married	Business	High School	5	2	3	2	
228117019	SHRUTI KUMAR SHARMA	4	F	Hindu	Married	Business	High School	2	1	1	1	
228117020	ANIL KUMAR SHARMA	2	M	Hindu	Married	Business	High School	1	0	1	0	

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1.6 BIOLOGY (PRACTICAL)

Practical : 3 Hrs./Week

Title:

1. Introduction of biology experiments
2. Study of cell wall constituents and cell inclusions
3. Study of Stem modifications
4. Study of Root modifications
5. Study of Leaf modifications
6. Identification of Fruits and seeds
7. Preparation of Permanent slides
8. T.S. of Senna, Cassia, Ephedra, Podophyllum.
9. Simple plant physiological experiments
10. Identification of animals
11. Detailed study of Frog
12. Computer based tutorials

Scheme of Practical Examination :

	Sessionals	Annual
Identification	04	10
Synopsis	04	10
Major Experiment	07	20
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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3. Detailed syllabus and lecture wise schedule :

Title of the topic

- 1 Introduction to the science of microbiology. Major divisions of microbial world and Relationship among them.
- 2 Different methods of classification of microbes and study of Bacteria, Fungi, virus, Rickettsiae, Spirochetes.
- 3 Nutritional requirements, growth and cultivation of bacteria and virus. Study of different important media required for the growth of aerobic and anaerobic bacteria & fungi. Differential media, enriched media and selective media, maintenance of lab cultures.
- 4 Different methods used in isolation and identification of bacteria with emphasis to different staining techniques and biochemical reactions. Counting of bacteria - Total and Viable counting techniques.
- 5 Detailed study of different methods of sterilization including their merits and demerits. Sterilization methods for all pharmaceutical products. Detailed study of sterility testing of different pharmaceutical preparations . Brief information on Validation.
- 6 Disinfectants- Study of disinfectants, antiseptics, fungicidal and virucidal agents factors affecting their activation and mechanism of action. Evaluation of bactericidal, bacteristatic, . virucidal activities, evaluation of preservatives in pharmaceutical preparations.
- 7 Immunology- Immunity, Definition, Classification, General principles of natural immunity, Phagocytosis, acquired immunity(active and passive) . Antigens, chemical nature of antigens structure and formation of Antibodies, Antigen-Antibody reactions. Bacterial exotoxins and endotoxins. Significance of toxoids in active immunity, Immunization programme, and importance of booster dose.
- 8 Diagnostic tests : Schick's Test, Elisa test, Western Blot test, Southern Blot PCR Widal, QBC, Mantoux Peripheral smear. Study of malarial parasite.
- 9 Microbial culture sensitivity Testing: Interpretation of results Principles and methods of different microbiological assays, microbiological assay of Penicillin, Streptomycin and vitamin B₂ and B₁₂. Standardisation of vaccines and sera.
- 10 Study of infectious diseases: Typhoid, Tuberculosis, Malaria, Cholera, Hepatitis, Meningitis, Syphilis & Gonorrhea and HIV.

2.2 PHARMACEUTICAL MICROBIOLOGY (PRACTICAL)

Practical : 3 Hrs./Week

Title of the Experiment:

- 1 Study of apparatus used in experimental microbiology*.
- 2 Sterilisation of glass ware's. Preparation of media and sterilisation.*
- 3 Staining techniques – Simple staining ; Gram's staining ; Negative staining**
- 4 Study of motility characters*.
- 5 Enumeration of micro-organisms (Total and Viable)*
- 6 Study of the methods of isolation of pure culture.*
- 7 Bio chemical testing for the identification of micro*-organisms.




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- 8 Cultural sensitivity testing for some micro-organisms.*
- 9 Sterility testing for powders and liquids.*
- 10 Determination of minimum inhibitory concentration.*
- 11 Microbiological assay of antibiotics by cup plate method.*
- 12 Microbiological assay of vitamins by Turbidometric method**
- 13 Determination of RWC.**
- 14 Diagnostic tests for some common diseases, Widal, malarial parasite.**

* Indicate minor experiment & ** indicate major experiment

Assignments:

- 1 Visit to some pathological laboratories & study the activities and equipment/instruments used and reporting the same.
2. Visit to milk dairies (Pasturization) and microbial laboratories (other sterilization methods) & study the activities and equipment/instruments used and reporting the same.
3. Library assignments
 - a. Report of recent microbial techniques developed in diagnosing some common diseases.
 - b. Latest advancement developed in identifying, cultivating & handling of microorganisms.

Format of the assignment:

1. Minimum & Maximum number of pages.
2. It shall be computer draft copy.
3. Reference(s) shall be included at the end.
4. Name and signature of the student.
5. Assignment can be a combined presentation at the end of the academic year.
6. Time allocated for presentation may be 8+2 Min.

Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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T2107

PHARMACEUTICAL

MICROBIOLOGY

LAB

ATTENDANCE OF STUDENTS

S. No.	Regd. No.	
	2204170001	ADARSH CHAKRABORTY
	2204170002	ADARSH CHAKRABORTY
	2204170003	ADARSH CHAKRABORTY
	2204170004	ADARSH CHAKRABORTY
	2204170005	ADARSH CHAKRABORTY
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	2204170036	ADARSH CHAKRABORTY
	2204170037	ADARSH CHAKRABORTY
	2204170038	ADARSH CHAKRABORTY
	2204170039	ADARSH CHAKRABORTY
	2204170040	ADARSH CHAKRABORTY
	2204170041	ADARSH CHAKRABORTY
	2204170042	ADARSH CHAKRABORTY
	2204170043	ADARSH CHAKRABORTY
	2204170044	ADARSH CHAKRABORTY
	2204170045	ADARSH CHAKRABORTY
	2204170046	ADARSH CHAKRABORTY
	2204170047	ADARSH CHAKRABORTY
	2204170048	ADARSH CHAKRABORTY
	2204170049	ADARSH CHAKRABORTY
	2204170050	ADARSH CHAKRABORTY

Attendance of Students in

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100		

PRACTICAL CLASSES

S. No.	Regd. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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2.3 PHARMACOGNOSY & PHYTOPHARMACEUTICALS (PRACTICAL)

Practical : 3 Hrs./Week

General Requirements: Laboratory Napkin, Observation Book 150 pages Zero brush, Needle, Blade, Match box.

List of experiments:

- 1 Introduction of Pharmacognosy laboratory and experiments.
- 2 Study of cell wall constituents and cell inclusions.
- 3 Macro, powder and microscopic study of Datura.
- 4 Macro, powder and microscopic study of Senna.
- 5 Macro, powder and microscopic study of Cassia.cinnamon.
- 6 Macro, powder and microscopic study of Cinchona.
- 7 Macro, powder and microscopic study of Ephedra.
- 8 Macro, powder and microscopic study of Quassia.
- 9 Macro, powder and microscopic study of Clove.
- 10 Macro, powder and microscopic study of Fennel.
- 11 Macro, powder and microscopic study of Coriander.
- 12 Macro, powder and microscopic study of Isapgol.
- 13 Macro, powder and microscopic study of Nux vomica.
- 14 Macro, powder and microscopic study of Rauwolfia.
- 15 Macro, powder and microscopic study of Liquorice.
- 16 Macro, powder and microscopic study of Ginger.
- 17 Macro, powder and microscopic study of Podophyllum.
- 18 Determination of Iodine value.
- 19 Determination of Saponification value and unsaponifiable matter.
- 20 Determination of ester value.
- 21 Determination of Acid value.
- 22 Chemical tests for Acacia.
- 23 Chemical tests for Tragacanth.
- 24 Chemical tests for Agar.
- 25 Chemical tests for Starch.
- 26 Chemical tests for Lipids. (castor oil, sesame oil, shark liver oil, bees wax)
- 27 Chemical tests for Gelatin.

Scheme of Practical Examination:

	Sessionals	Annual
Identification	04	10
Synopsis	04	10
Major Experiment	07	20
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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attendance of students in

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3. Detailed syllabus and lecture wise schedule :

Etiopathogenesis and pharmacotherapy of diseases associated with following systems/ diseases

Title of the topic

- 1 **Cardiovascular system:** Hypertension, Congestive cardiac failure, Angina Pectoris, Myocardial infarction, Hyperlipidaemias, Electrophysiology of heart and Arrhythmias
- 2 **Respiratory system :** Introduction to Pulmonary function test, Asthma, Chronic obstructive airways disease, Drug induced pulmonary diseases
Endocrine system : Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis
- 3 **General prescribing guidelines for**
 - a. Paediatric patients
 - b. Geriatric patients
 - c. Pregnancy and breast feeding
- 4 **Ophthalmology:** Glaucoma, Conjunctivitis- viral & bacterial
- 5 **Introduction to rational drug use**
Definition, Role of pharmacist Essential drug concept Rational drug formulations

2.6 PHARMACOTHERAPEUTICS - I (PRACTICAL)

Practical : 3 Hrs./Week

Practicals :

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation. A minimum of 20 cases should be presented and recorded covering most common diseases.

Assignments :

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.




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T2109 PHARMACOTHERAPEUTICS - I LAB

ATTENDANCE OF STUD		Attendance of Students in												PRACTICAL CLASSES																				
Sl. No.	Regd. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	% of Absence	Theory	Practical
111411001	AMRULLA CLASH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411002	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411003	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411004	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411005	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411006	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411007	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411008	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411009	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411010	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411011	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411012	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411013	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	90	100	100
111411014	ARUNA B. A. B. B. B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19														

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3.1 PHARMACOLOGY – II (PRACTICAL)

Practical : 3 Hrs./Week

List of Experiments:

1. Study of laboratory animals and their handling (a. Frogs, b. Mice, c. Rats, d. Guinea pigs, e. Rabbits).
2. Study of physiological salt solutions used in experimental pharmacology.
3. Study of laboratory appliances used in experimental pharmacology.
4. Study of use of anesthetics in laboratory animals.
5. To record the dose response curve of Ach using isolated ileum/rectus abdominis muscle preparation.
6. To carry out bioassay of Ach using isolated ileum/rectus abdominis muscle preparation by interpolation method.
7. To carry out bioassay of Ach using isolated ileum/rectus abdominis muscle preparation by three point method.
8. To record the dose response curve of Histamine using isolated guinea-pig ileum preparation.
9. Study of agonistic and antagonistic effects of drugs using isolated guinea-pig ileum preparation.
10. To carry out bioassay of Histamine using isolated guinea-pig ileum preparation by interpolation method.
11. To carry out bioassay of Histamine using guinea-pig ileum preparation by three point method.
12. To study the routes of administration of drugs in animals (Rats, Mice, Rabbits).
13. Study of theory, principle, procedure involved and interpretation of given results for the following experiments:
 - a) Analgesic property of drug using analgesiometer.
 - b) Antiinflammatory effect of drugs using rat-paw edema method.
 - c) Anticonvulsant activity of drugs using maximal electroshock and pentylenetetrazole methods.
 - d) Antidepressant activity of drugs using pole climbing apparatus and pentobarbitone induced sleeping time methods.
 - e) Locomotor activity evaluation of drugs using actophotometer and rotarod.
 - f) Cardiotonic activity of drugs using isolated frog heart and mammalian heart preparations.

Scheme of Practical Examination:

	Sessionals	Annual
Identification	02	10
Synopsis	04	10
Major Experiment (Bioassay)	08	30
Minor Experiment (Interpretation of given Graph or simulated experiment)	04	10
Viva	02	10
Max Marks	20	70
Duration	3hrs	4hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).



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Practicals

Title of the Experiment:

- 1 Study of agonistic and antagonistic effects of drugs using Guinea-pig ileum preparation.**
- 2 To study the effects of drugs on intestinal motility using frog's esophagus model*
- 3 To study the effects of drugs using rat uterus preparation.**
- 4 To study the anticonvulsant property of drugs (any one model).*
- 5 To study antihistaminic property of drug using histamine induced anaphylactic reaction in guinea pigs.
- 6 To study the apomorphine-induced compulsive behaviour (stereotypy) in mice.*
- 7 To study the muscle relaxant property of diazepam in mice using rotarod apparatus.*
- 8 To study the antiinflammatory property of indomethacin against carrageenan-induced paw oedema.**
- 9 To study the anxiolytic effect of diazepam in mice using mirrored-chamber apparatus.**
- 10 To demonstrate the effect of various drugs on the blood pressure and respiration of anesthetized dog.
- 11 To study the effect of anthelmintics on earthworms.
- 12 To study the taming effect of chlorpromazine.*
- 13 To study the effects of drugs on vas deferens of the male rat.**
- 14 To study the effect of drugs on pesticide toxicity using rats as model.
- 15 To study the effect of drugs on heavy metal toxicity.

** indicate major experiment & * indicate minor experiment

Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).



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ATTENDANCE OF STUDENTS	
Sl. No.	Name
1	ADARSH K. S.
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99	ADARSH K. S.
100	ADARSH K. S.

Attendance of Students by												
	1	2	3	4	5	6	7	8	9	10	11	12
Roll No.	01	02	03	04	05	06	07	08	09	10	11	12
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- **Fluorimetric Analysis:** Theory, luminescence, factors affecting fluorescence, quenching. Instrumentation, Applications, fluorescent indicators, study of pharmaceutically important compounds estimated by fluorimetry.
- b. **Flame Photometry:** Theory, nebulisation, flame and flame temperature, interferences, flame spectrometric techniques and instrumentation and pharmaceutical applications.
- c. **Atomic Absorption Spectrometry:** Introduction, Theory, types of electrodes, instrumentation and applications.
- d. **Atomic Emission Spectroscopy:** Spectroscopic sources, atomic emission spectrometers, photographic and photoelectric detection.
- e. **NMR & ESR (introduction only):** Introduction, theoretical aspects and applications.
- f. **Mass Spectroscopy: (Introduction only) –** Fragmentation, types of ions produced mass spectrum and applications.
- g. **Polarimetry: (Introduction only) –** Introduction to optical rotatory dispersion, circular dichroism, polarimeter.
- h. **X-RAY Diffraction: (Introduction only) –** Theory, reciprocal lattice concept, diffraction patterns and applications.
- i. **Thermal Analysis:** Introduction, instrumentation, applications, and DSC and DTA.

3.2 PHARMACEUTICAL ANALYSIS (PRACTICAL)

Practical : 3 Hrs./Week

List of Experiments:

1. Separation and identification of Amino Acids by Paper Chromatography.
2. Separation and identification of Sulpha drugs by TLC technique.
3. Effect of pH and solvent on the UV spectrum of given compound.
4. Comparison of the UV spectrum of a compound with that of its derivatives.
5. Determination of dissociation constant of indicators using UV-Visible spectroscopy.
6. Conductometric titration of mixture of acids with a strong base.
7. Potentiometric titration of a acid with a strong base.
8. Estimation of drugs by Fluorimetric technique.
9. Study of quenching effect in fluorimetry.
10. Colourimetric estimation of Sulpha drugs using BMR reagent.




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11. Simultaneous estimation of two drugs present in given formulation.
12. Assay of Salicylic Acid by colourimetry.
13. Determination of Chlorides and Sulphates in Calcium gluconate by Nepheloturbidimetric Method.
14. Determination of Na/K by Flame Photometry.
15. Determination of pKa using pH meter.
16. Determination of specific rotation.
17. Comparison of the IR spectrum of a compound with that of its derivatives.
18. Demonstration of HPLC.
19. Demonstration of HPTLC.
20. Demonstration of GC-MS.
21. Demonstration of DSC.
22. Interpretation of NMR spectra of any one compound.

Reference Books:

1. Text Book of Pharm. Analysis by Higuchi, T and Hasen, E. B., New York Inter Science Publishers.
2. Quantitative Pharma. Analysis by Jenkins, The Blakiston division, New York.
3. Quantitative Drug Analysis, by Garrot, D, Chapman & Hall Ltd., London.
4. Undergraduate Instrumental Analysis by James, E., CBS Publishers.
5. Instrumental Analysis by Willard and Merritt, EWP, East West Press Ltd., Delhi/Madras.
6. Pharm Analysis by Skoog and West, Sounders Manipal College Publishing.
7. Text Book of Chemical Analysis, by A.I.Vogel, ELBS with Macmillan press, Hampshire.
8. Textbook of Pharm. Analysis by K.A.Connors, John Wiley & Sons, New York, Brisbane, Singapore.
9. Textbook of Pharm. Analysis (Practical) by Beckett & Stenlake, CBS Publishers, Delhi.
10. Textbook of Drug Analysis by P.D. Sethi., CBS Publishers, Delhi.
11. Spectroscopy by Silverstein, John & Wiley & Sons, Inc., Canada & Singapore.
12. How to practise GMP-A Plan for total quality control by P.P. Sharma, Vandana Publications, Agra.
13. The Science & Practice of Pharmacy by Remington Vol-I & II, Mack Publishing Co. Pennsylvania.
14. TLC by Stahl, Spring Verlay.
15. Text Book of Pharm. Chemistry by Chatten, CBS Publications.
16. Spectroscopy by William Kemp, ELBS with Macmillan Press, Hampshire.
17. I.P.,-1996, The Controller of Publications, New Delhi.
18. BPC- Dept. of Health, U.K. for HMSO.
19. USP - Mack Publishing Co., Easton, PA.
20. The Extra Pharmacopoeia – The Pharm. Press, London.




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T3102

PHARMACEUTICAL ANALYSIS LAB

ATTENDANCE OF STUDENT		PRACTICAL CLASSROOM	
Sl. No.	Name of Student	1	2
1	11801001 ADITHYAN K	1	2
2	11801002 ADITHYAN K	3	4
3	11801003 ADITHYAN K	5	6
4	11801004 ADITHYAN K	7	8
5	11801005 ADITHYAN K	9	10
6	11801006 ADITHYAN K	11	12
7	11801007 ADITHYAN K	13	14
8	11801008 ADITHYAN K	15	16
9	11801009 ADITHYAN K	17	18
10	11801010 ADITHYAN K	19	20
11	11801011 ADITHYAN K	21	22
12	11801012 ADITHYAN K	23	24
13	11801013 ADITHYAN K	25	26
14	11801014 ADITHYAN K	27	28
15	11801015 ADITHYAN K	29	30
16	11801016 ADITHYAN K	31	32
17	11801017 ADITHYAN K	33	34
18	11801018 ADITHYAN K	35	36
19	11801019 ADITHYAN K	37	38
20	11801020 ADITHYAN K	39	40
21	11801021 ADITHYAN K	41	42
22	11801022 ADITHYAN K	43	44
23	11801023 ADITHYAN K	45	46
24	11801024 ADITHYAN K	47	48
25	11801025 ADITHYAN K	49	50
26	11801026 ADITHYAN K	51	52
27	11801027 ADITHYAN K	53	54
28	11801028 ADITHYAN K	55	56
29	11801029 ADITHYAN K	57	58
30	11801030 ADITHYAN K	59	60
31	11801031 ADITHYAN K	61	62
32	11801032 ADITHYAN K	63	64
33	11801033 ADITHYAN K	65	66
34	11801034 ADITHYAN K	67	68
35	11801035 ADITHYAN K	69	70
36	11801036 ADITHYAN K	71	72
37	11801037 ADITHYAN K	73	74
38	11801038 ADITHYAN K	75	76
39	11801039 ADITHYAN K	77	78
40	11801040 ADITHYAN K	79	80
41	11801041 ADITHYAN K	81	82
42	11801042 ADITHYAN K	83	84
43	11801043 ADITHYAN K	85	86
44	11801044 ADITHYAN K	87	88
45	11801045 ADITHYAN K	89	90
46	11801046 ADITHYAN K	91	92
47	11801047 ADITHYAN K	93	94
48	11801048 ADITHYAN K	95	96
49	11801049 ADITHYAN K	97	98
50	11801050 ADITHYAN K	99	100

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PRACTICAL CLASSES

Index	Subject	Full name of the student	Section	Grade	Score	Percentage	Rank	Comments
1	Mathematics	John Doe	101	10	85	85%	1	Excellent
2	Science	Jane Smith	102	11	78	78%	2	Good
3	History	Michael Johnson	103	12	92	92%	3	Very Good
4	Art	Sarah Lee	104	13	88	88%	4	Good
5	Physical Education	David Brown	105	14	75	75%	5	Good
6	Music	Emily White	106	15	82	82%	6	Good
7	Language Arts	Robert Green	107	16	70	70%	7	Good
8	Mathematics	Laura Black	108	17	88	88%	8	Good
9	Science	Christopher Gray	109	18	72	72%	9	Good
10	History	Amanda King	110	19	80	80%	10	Good
11	Art	Benjamin Hill	111	20	75	75%	11	Good
12	Physical Education	Sophia Young	112	21	85	85%	12	Good
13	Music	Matthew Evans	113	22	78	78%	13	Good
14	Language Arts	Olivia Adams	114	23	82	82%	14	Good
15	Mathematics	Isaac Baker	115	24	70	70%	15	Good
16	Science	Mia Nelson	116	25	88	88%	16	Good
17	History	Ethan Carter	117	26	75	75%	17	Good
18	Art	Ava Perez	118	27	80	80%	18	Good
19	Physical Education	Noah Roberts	119	28	72	72%	19	Good
20	Music	Charlotte Walker	120	29	85	85%	20	Good
21	Language Arts	Lucas Hall	121	30	78	78%	21	Good
22	Mathematics	Grace Allen	122	31	82	82%	22	Good
23	Science	Henry King	123	32	70	70%	23	Good
24	History	Victoria Scott	124	33	88	88%	24	Good
25	Art	Sebastian Torres	125	34	75	75%	25	Good
26	Physical Education	Madison Baker	126	35	80	80%	26	Good
27	Music	Julian Green	127	36	72	72%	27	Good
28	Language Arts	Chloe Adams	128	37	85	85%	28	Good
29	Mathematics	Isabella Baker	129	38	78	78%	29	Good
30	Science	Samuel Nelson	130	39	82	82%	30	Good
31	History	Leah Carter	131	40	70	70%	31	Good
32	Art	Diego Perez	132	41	88	88%	32	Good
33	Physical Education	Isabella Roberts	133	42	75	75%	33	Good
34	Music	Christopher Walker	134	43	80	80%	34	Good
35	Language Arts	Madeline Hall	135	44	72	72%	35	Good
36	Mathematics	Benjamin Allen	136	45	85	85%	36	Good
37	Science	Sophia King	137	46	78	78%	37	Good
38	History	Matthew Scott	138	47	82	82%	38	Good
39	Art	Olivia Torres	139	48	70	70%	39	Good
40	Physical Education	Ethan Baker	140	49	88	88%	40	Good
41	Music	Ava Green	141	50	75	75%	41	Good
42	Language Arts	Noah Adams	142	51	80	80%	42	Good
43	Mathematics	Charlotte Baker	143	52	72	72%	43	Good
44	Science	Lucas Nelson	144	53	85	85%	44	Good
45	History	Mia Carter	145	54	78	78%	45	Good
46	Art	Sebastian Perez	146	55	82	82%	46	Good
47	Physical Education	Madison Roberts	147	56	70	70%	47	Good
48	Music	Julian Walker	148	57	88	88%	48	Good
49	Language Arts	Chloe Hall	149	58	75	75%	49	Good
50	Mathematics	Benjamin Allen	150	59	80	80%	50	Good

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- 4 **Oncology:** Basic principles of Cancer therapy, General introduction to cancer chemotherapeutic agents, Chemotherapy of breast cancer, leukemia. Management of chemotherapy nausea and emesis
- 5 **Dermatology:** Psoriasis, Scabies, Eczema, Impetigo

3.3 PHARMACOTHERAPEUTICS – II (PRACTICAL)

Practical : 3 Hrs./Week

Practicals :

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the end of the course for evaluation.

The student shall be trained to understand the principle and practice involved in selection of drug therapy including clinical discussion.

A minimum of 20 cases should be presented and recorded covering most common diseases.

Assignments :

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.

Format of the assignment :

1. Minimum & Maximum number of pages.
2. Reference(s) shall be included at the end.
3. Assignment can be a combined presentation at the end of the academic year.
4. It shall be computer draft copy.
5. Name and signature of the student.
6. Time allocated for presentation may be 8+2 Min.

Scheme of Practical Examination :

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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T3109 PHARMACOTHERAPEUTICS - II LAB

ATTENDANCE OF STUD

Attendance of Students in

Sl. No.	REG. NO.	1	2	3	4	5	6	7	8	9	10	11	12
1	11010001 J. SURESH KUMAR												
2	11010002 J. L. J. KUMAR												
3	11010003 A. VEDHAKUMAR												
4	11010004 ROSEMARY BHARATH												
5	11010005 K. S. S. S. S. S.												
6	11010006 S. S. S. S. S.												
7	11010007 S. S. S. S. S.												
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25	11010025 S. S. S. S. S.												
26	11010026 S. S. S. S. S.												
27	11010027 S. S. S. S. S.												
28	11010028 S. S. S. S. S.												
29	11010029 S. S. S. S. S.												
30	11010030 S. S. S. S. S.												

PRACTICAL CLASSES

Sl. No.	REG. NO.	1	2	3	4	5	6	7	8	9	10	11	12
1	11010001 J. SURESH KUMAR												
2	11010002 J. L. J. KUMAR												
3	11010003 A. VEDHAKUMAR												
4	11010004 ROSEMARY BHARATH												
5	11010005 K. S. S. S. S. S.												
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PRACTICAL CLASSES

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3.5 MEDICINAL CHEMISTRY (PRACTICAL)

Practical : 3 Hrs./Week

1. Assays of important drugs from the course content.
2. Preparation of medicinally important compounds or intermediates required for synthesis of drugs.
3. Monograph analysis of important drugs.
4. Determination of partition coefficients, dissociation constants and molar refractivity of compounds for QSAR analysis.

Reference Books:

- a. Wilson and Gisvold's Text book of Organic, Medicinal and Pharmaceutical Chemistry, Lippincott-Raven Publishers-New York, Philadelphia.
- b. William O. Foye, Principles of Medicinal Chemistry, B.I. Waverly Pvt. Ltd., New Delhi.
- c. Burgers, Medicinal Chemistry, M.E. Welly Med.Chemistry M.E. Walffed Johnwiley and Sons, Wiley-intercience Publication, New York, Toronto.
- d. A Text Book of Medicinal Chemistry Vol. I and II by Surendra N. Pandeya, S.G. Publisher, 6, Dildayal Nagar, Varanasi -10.
- e. Indian Pharmacopoeia 1985 and 1996. The Controller of Publications, Civil Lines, Delhi - 54.
- f. Current Index of Medical Specialities (CIMS) and MIMS India, MIMS, A.E. Morgan Publications (I) Pvt. Ltd, New Delhi-19.
- g. Organic Drug Synthesis-Ledniser Mitzsher Vol. I and II.
- h. Pharmaceutical Chemistry drug Synthesis Vol. I and II by H. J. Roth and A. Kleemann.
- i. The Science and Practice of Pharmacy Vol. 1 and 2, Remington, MACK Publishing Company, Easton, Pennsylvania.




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T3 110 MEDICINAL CHEMISTRY LAB

ATTENDANCE OF STU

No. No.	Wajah, A/R	
	2108170001	AKRUM ILA EDIRMANA
	2108170002	AGILA HAKIMHITA
	2108170003	ADITHYAN MURUGAN
	2108170004	ADIRIPPA DEVIYA S
	2108170005	ADITHYAN
	2108170006	ADILA RUPHITHA
	2108170007	AGILA HARANA
	2108170008	SANJIV VINEETHA
	2108170009	ADARSH KIRATI
	2108170010	AGHILA KROTHUL
	2108170011	ADITHYAN ADARSH
	2108170012	ADITHYAN SUTHEE PRASANNA
	2108170013	ADITHYAN RAVINDRA
	2108170014	ADITHYAN MAYANK
	2108170015	ADITHYAN LAKSHY

Attendance of Students in

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PRACTICAL CLASSROOM

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3. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
4. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
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20. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
21. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
22. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
23. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
24. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
25. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
26. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
27. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
28. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
29. 19	19	20	21	22	23	24	25	26	27	28	29	30		100			
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3.6 PHARMACEUTICAL FORMULATIONS (PRACTICAL)

Practical : 3 Hrs./Week

List of Experiments :

1. **Manufacture of Tablets**
 - a. Ordinary compressed tablet-wet granulation
 - b. Tablets prepared by direct compression
 - c. Soluble tablet.
 - d. Chewable tablet.
2. **Formulation and filling of hard gelatin capsules**
3. **Manufacture of parenterals**
 - a. Ascorbic acid injection
 - b. Calcium gluconate injection
 - c. Sodium chloride infusion.
 - d. Dextrose and Sodium chloride injection/ infusion.
4. **Evaluation of Pharmaceutical formulations (QC tests)**
 - a. Tablets
 - b. Capsules
 - c. Injections
5. **Formulation of two liquid oral preparations and evaluation by assay**
 - a. Solution: Paracetamol Syrup
 - b. Antacid suspensions- Aluminum hydroxide gel
6. **Formulation of semisolids and evaluation by assay**
 - a. Salicylic acid and benzoic acid ointment
 - b. Gel formulation Diclofenac gel
7. **Cosmetic preparations**
 - a. Lipsticks
 - b. Cold cream and vanishing cream
 - c. Clear liquid shampoo
 - d. Tooth paste and tooth powders.
8. **Tablet coating (demonstration)**

Scheme of Practical Examination :

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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PHARMACEUTICAL FORMULATIONS LAB

ATTENDANCE OF STUD

Sl. No.	First Name
2110110001	ABHIRAM BISHAKATA
2110110002	ADARSH K. P. K.
2110110003	A. ADARSH K. P. K.
2110110004	A. ADARSH K. P. K.
2110110005	A. ADARSH K. P. K.
2110110006	A. ADARSH K. P. K.
2110110007	A. ADARSH K. P. K.
2110110008	A. ADARSH K. P. K.
2110110009	A. ADARSH K. P. K.
2110110010	A. ADARSH K. P. K.
2110110011	A. ADARSH K. P. K.
2110110012	A. ADARSH K. P. K.
2110110013	A. ADARSH K. P. K.
2110110014	A. ADARSH K. P. K.
2110110015	A. ADARSH K. P. K.
2110110016	A. ADARSH K. P. K.
2110110017	A. ADARSH K. P. K.
2110110018	A. ADARSH K. P. K.
2110110019	A. ADARSH K. P. K.
2110110020	A. ADARSH K. P. K.

Attendance of Students in

Sl. No.	1	2	3	4	5	6	7	8	9	10	11	12
1	A	A	A	A	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	A	A	A	A	A	A
4	A	A	A	A	A	A	A	A	A	A	A	A
5	A	A	A	A	A	A	A	A	A	A	A	A
6	A	A	A	A	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A	A	A	A	A
8	A	A	A	A	A	A	A	A	A	A	A	A
9	A	A	A	A	A	A	A	A	A	A	A	A
10	A	A	A	A	A	A	A	A	A	A	A	A
11	A	A	A	A	A	A	A	A	A	A	A	A
12	A	A	A	A	A	A	A	A	A	A	A	A
13	A	A	A	A	A	A	A	A	A	A	A	A
14	A	A	A	A	A	A	A	A	A	A	A	A
15	A	A	A	A	A	A	A	A	A	A	A	A
16	A	A	A	A	A	A	A	A	A	A	A	A
17	A	A	A	A	A	A	A	A	A	A	A	A
18	A	A	A	A	A	A	A	A	A	A	A	A
19	A	A	A	A	A	A	A	A	A	A	A	A
20	A	A	A	A	A	A	A	A	A	A	A	A

PRACTICAL CLASSES

Sl. No.	1	2	3	4	5	6	7	8	9	10	11	12
1	A	A	A	A	A	A	A	A	A	A	A	A
2	A	A	A	A	A	A	A	A	A	A	A	A
3	A	A	A	A	A	A	A	A	A	A	A	A
4	A	A	A	A	A	A	A	A	A	A	A	A
5	A	A	A	A	A	A	A	A	A	A	A	A
6	A	A	A	A	A	A	A	A	A	A	A	A
7	A	A	A	A	A	A	A	A	A	A	A	A
8	A	A	A	A	A	A	A	A	A	A	A	A
9	A	A	A	A	A	A	A	A	A	A	A	A
10	A	A	A	A	A	A	A	A	A	A	A	A
11	A	A	A	A	A	A	A	A	A	A	A	A
12	A	A	A	A	A	A	A	A	A	A	A	A
13	A	A	A	A	A	A	A	A	A	A	A	A
14	A	A	A	A	A	A	A	A	A	A	A	A
15	A	A	A	A	A	A	A	A	A	A	A	A
16	A	A	A	A	A	A	A	A	A	A	A	A
17	A	A	A	A	A	A	A	A	A	A	A	A
18	A	A	A	A	A	A	A	A	A	A	A	A
19	A	A	A	A	A	A	A	A	A	A	A	A
20	A	A	A	A	A	A	A	A	A	A	A	A

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ATTENDANCE OF STUD

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attendance of Students is

	1	2	3	4	5	6	7	8	9	10	11
100	100	99	98	97	96	95	94	93	92	91	90
90	91	92	93	94	95	96	97	98	99	100	101
80	81	82	83	84	85	86	87	88	89	90	91
70	71	72	73	74	75	76	77	78	79	80	81
60	61	62	63	64	65	66	67	68	69	70	71
50	51	52	53	54	55	56	57	58	59	60	61
40	41	42	43	44	45	46	47	48	49	50	51
30	31	32	33	34	35	36	37	38	39	40	41
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20	89	90	91	92	93	94	95	96	97	98	99
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0	111	112	113	114	115	116	117	118	119	120	121

PRACTICAL CLASSROOM

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4.1 PHARMACOTHERAPEUTICS – III (PRACTICAL)

Practical : 3 Hrs./Week

Practicals:

Hospital postings for a period of at least 50 hours is required to understand the principles and practice involved in ward round participation and clinical discussion on selection of drug therapy. Students are required to maintain a record of 15 cases observed in the ward and the same should be submitted at the end of the course for evaluation. Each student should present at least two medical cases they have observed and followed in the wards.

Etiopathogenesis and pharmacotherapy of diseases associated with following systems/ diseases:

Title of the topic

- 1 **Gastrointestinal system:** Peptic ulcer disease, Gastro Esophageal Reflux Disease, Inflammatory bowel disease, Liver disorders - Alcoholic liver disease, Viral hepatitis including jaundice, and Drug induced liver disorders.
- 2 **Haematological system:** Anaemias, Venous thromboembolism, Drug induced blood disorders.
- 3 **Nervous system:** Epilepsy, Parkinsonism, Stroke, Alzheimer's disease,
- 4 **Psychiatry disorders:** Schizophrenia, Affective disorders, Anxiety disorders, Sleep disorders, Obsessive Compulsive disorders
- 5 Pain management including Pain pathways, neuralgias, headaches.
- 6 Evidence Based Medicine

Assignments:

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.

Format of the assignment:

1. Minimum & Maximum number of pages
2. Reference(s) shall be included at the end.
3. Assignment can be a combined presentation at the end of the academic year
4. It shall be computer draft copy
5. Name and signature of the student
6. Time allocated for presentation may be 8+2 Min.

Scheme of Practical Examination :

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
Max Marks	20	70
Duration	03hrs	04hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).




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PRACTICAL CLASSES																							
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	No. of Bones	Second Class			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		10	11	12	13
11	5	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

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Case 1st cl. at 11 h.d. to dist. (dist. to dist. to



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ATTENDANCE OF STUDENTS			Attendance of Students in																				Practical Classes												
Sl. No.	Regd. No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total	Remarks	
	0001	YASHINI ZITA ALVINA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0002	RIKSHI RANJAN MUNDRA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0003	SHARVATHI RAJ KSHAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0004	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0005	SATISH K. LAKSHMI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0006	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0007	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0008	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0009	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0010	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0011	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0012	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0013	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0014	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0015	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0016	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0017	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0018	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0019	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	
	0020	SHRUTI K. SURESH K. SURESH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	24	100%	




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- 5 **Hospital pharmacy services**
 - a) Procurement & warehousing of drugs and Pharmaceuticals
 - b) Inventory control
Definition, various methods of Inventory Control
ABC, VED, EOQ, Lead time, safety stock
 - c) Drug distribution in the hospital
 - i) Individual prescription method
 - ii) Floor stock method
 - iii) Unit dose drug distribution method
 - d) Distribution of Narcotic and other controlled substances
 - e) Central sterile supply services – Role of pharmacist
- 6 **Manufacture of Pharmaceutical preparations**
 - a) Sterile formulations – large and small volume parenterals
 - b) Manufacture of Ointments, Liquids, and creams
 - c) Manufacturing of Tablets, granules, capsules, and powders
 - d) Total parenteral nutrition
- 7 **Continuing professional development programs**
Education and training
- 8 **Radio Pharmaceuticals – Handling and packaging**
- 9 **Professional Relations and practices of hospital pharmacist**

4.2 HOSPITAL PHARMACY (PRACTICAL)

Practical : 3 Hrs./Week

1. Assessment of drug interactions in the given prescriptions
2. Manufacture of parenteral formulations, powders.
3. Drug information queries.
4. Inventory control

List of Assignments:

1. Design and Management of Hospital pharmacy department for a 300 bedded hospital.
2. Pharmacy and Therapeutics committee – Organization, functions, and limitations.
3. Development of a hospital formulary for 300 bedded teaching hospital
4. Preparation of ABC analysis of drugs sold in one month from the pharmacy.
5. Different phases of clinical trials with elements to be evaluated.
6. Various sources of drug information and systematic approach to provide unbiased drug information.
7. Evaluation of prescriptions generated in hospital for drug interactions and find out the suitable management.




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3. **Patient data analysis**
The patient's case history, its structure and use in evaluation of drug therapy & Understanding common medical abbreviations and terminologies used in clinical practices.
4. **Clinical laboratory tests used in the evaluation of disease states, and interpretation of test results**
 - a. Haematological, Liver function, Renal function, thyroid function tests
 - b. Tests associated with cardiac disorders
 - c. Fluid and electrolyte balance
 - d. Microbiological culture sensitivity tests
 - e. Pulmonary Function Tests
5. **Drug & Poison information**
 - a. Introduction to drug information resources available
 - b. Systematic approach in answering DI queries
 - c. Critical evaluation of drug information and literature
 - d. Preparation of written and verbal reports
 - e. Establishing a Drug Information Centre
 - f. Poisons information- organization & information resources
6. **Pharmacovigilance**
 - a. Scope, definition and aims of pharmacovigilance
 - b. Adverse drug reactions - Classification, mechanism, predisposing factors, causality assessment [different scales used]
 - c. Reporting, evaluation, monitoring, preventing & management of ADRs
 - d. Role of pharmacist in management of ADR.
7. Communication skills, including patient counselling techniques, medication history interview, presentation of cases.
8. Pharmaceutical care concepts
9. Critical evaluation of biomedical literature
10. Medication errors

4.3 CLINICAL PHARMACY (PRACTICAL)

Practical : 3 Hrs./Week

Students are expected to perform 15 practicals in the following areas covering the topics dealt in theory class.

- a. Answering drug information questions (4 Nos)
- b. Patient medication counselling (4 Nos)
- c. Case studies related to laboratory investigations (4 Nos)
- d. Patient medication history interview (3 Nos)




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4.3 CLINICAL PHARMACY PRACTICAL

ATTENDANCE OF STUDENT		Attendance of Student in												
Sl. No.	Regd. No.	1	2	3	4	5	6	7	8	9	10	11	12	
200617001	ALLA SYRANA SATYA S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617002	DRAMBARATI LAKSHYA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617003	ARJUN MEENAKSHI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617004	GANI PRAYANCA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617005	CHINMALLA PRITHA R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617006	KOMALAKANTA DEVARU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617007	VUDURUDI VEDHATA PR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617008	CHILAKURTHI SHIVANI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617009	RAJAN SHAKHARAJAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617010	MAHARATHI KIRITILAKSHI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617011	MAHENDU CHINJA ESWARI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617012	MAHATHA SANKAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617013	SHANMUGA VESANTH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617014	SHANKAR SRIVANI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617015	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

ATTENDANCE OF STUDENT		Attendance of Student in												
Sl. No.	Regd. No.	13	14	15	16	17	18	19	20	21	22	23	24	
200617016	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617017	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617018	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617019	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617020	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617021	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617022	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
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200617024	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617025	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
200617026	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
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200617028	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
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200617031	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
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200617035	SHANTHA PURJA RAJEND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

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4.5 BIOPHARMACEUTICS AND PHARMACOKINETICS (PRACTICAL)

Practical : 3 Hrs./Week

1. Improvement of dissolution characteristics of slightly soluble drugs by some methods.
2. Comparison of dissolution studies of two different marketed products of same drug.
3. Influence of polymorphism on solubility and dissolution.
4. Protein binding studies of a highly protein bound drug and poorly protein bound drug.
5. Extent of plasma-protein binding studies on the same drug (i.e. highly and poorly protein bound drug) at different concentrations in respect of constant time.
6. Bioavailability studies of some commonly used drugs on animal/human model.
7. Calculation of K_a , K_e , $t_{1/2}$, C_{max} , AUC, AUMC, MRT etc. from blood profile data.
8. Calculation of bioavailability from urinary excretion data for two drugs.
9. Calculation of AUC and bioequivalence from the given data for two drugs.
10. In vitro absorption studies.
11. Bioequivalency studies on the different drugs marketed.(eg) Tetracycline, Sulphamethoxazole, Trimethoprim, Aspirin etc., on animals and human volunteers.
12. Absorption studies in animal inverted intestine using various drugs.
13. Effect on contact time on the plasma protein binding of drugs.
14. Studying metabolic pathways for different drugs based on elimination kinetics data.
15. Calculation of elimination half-life for different drugs by using urinary elimination data and blood level data.
16. Determination of renal clearance.

References:

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- b. Remington's Pharmaceutical Sciences, By Mack Publishing Company, Pennsylvania.
- c. Pharmacokinetics: By Milo Gibaldi Dorak, R. Marcel Dekker Inc.
- d. Hand Book of Clinical Pharmacokinetics, By Milo Gibaldi and Laurie Prescott by ADIS Health Science Press.
- e. Biopharmaceutics and Pharmacokinetics; By Robert F Notari
- f. Biopharmaceutics; By Swarbrick
- g. Bio pharmaceutics and Pharmacokinetics-A Treatise, By D. M. Brahmkar and Sunil B.Jaiswal, Vallabh Prakashan Pitampura, Delhi.
- h. Clinical Pharmacokinetics, Concepts and Applications: By Malcolm Rowland and Thomas, N. Tozer, Lea and Febiger, Philadelphia, 1995.
- i. Dissolution, Bioavailability and Bioequivalence, By Abdou H.M, Mack, Publishing Company, Pennsylvania 1989.
- j. Biopharmaceutics and Clinical Pharmacokinetics-An introduction 4th edition Revised and expanded by Robert F Notari Marcel Dekker Inc, New York and Basel, 1987.
- k. Encyclopedia of Pharmaceutical Technology, Vol 13, James Swarbrick, James, C. Roylan, Marcel Dekker Inc, New York 1996.




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T4110 BIOPHARMACEUTICS AND PHARMACOKINETICS LAB

ATTENDANCE OF STUD

Sl. No.	Roll No.
1	20191001 ALLA SRIKANTH SATTI S
2	20191002 BHARADWAJ KANAKA L
3	20191003 CHODU SRIKANTH
4	20191004 GADU PRITHVIA
5	20191005 GUNJALLA PRIYA K
6	20191006 KODARAVATHI DEVI L
7	20191007 KUMAR VEDANTA P
8	20191008 LALLITHA MADHUR
9	20191009 LAJAMPATI VASANTH
10	20191010 MAHESH KARTHIK
11	20191011 MAHESH KARTHIK
12	20191012 MAHESH KARTHIK
13	20191013 MAHESH KARTHIK
14	20191014 MAHESH KARTHIK
15	20191015 MAHESH KARTHIK
16	20191016 MAHESH KARTHIK
17	20191017 MAHESH KARTHIK
18	20191018 MAHESH KARTHIK
19	20191019 MAHESH KARTHIK
20	20191020 MAHESH KARTHIK
21	20191021 MAHESH KARTHIK
22	20191022 MAHESH KARTHIK
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24	20191024 MAHESH KARTHIK
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30	20191030 MAHESH KARTHIK

Attendance of Students in

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PRACTICAL CLASSES

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