

## LECTURE PLAN – Theory

**SUBJECT** : PHARMACOLOGY II (Theory)  
**FACULTY** : Mr SARAVANAN J  
**DESIGNATION** : Assistant Professor, Department of Pharmacology  
**CONTACT DETAILS** : E- Mail: [getsarwan@jssuni.edu.in](mailto:getsarwan@jssuni.edu.in) Mobile: 9585625948

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	27	01	28	08
II	29	02	31	11
III	24	04	28	07
<b>Total Number of Hours</b>	80	07	87	26

### I SESSIONAL (27 Lectures + 01 Activity)

Lecture No.	Date	Lecture Details
<b>Unit-1: Pharmacology of Drugs acting on Renal System</b>		<b>05</b>
<b>Hours</b>		
1.	27.06.2022	Orientation to Pharmacology II & Basics of Diuretics
2.	28.06.2022	Loop & Medium Efficacy Diuretics
3.	29.06.2022	Weak or Adjunctive Diuretics
Tutorial 1	30.06.2022	
4.	04.07.2022	Mechanism & Pharmacological Actions of Vasopressin
5.	05.07.2022	Thiazides, Amiloride & Misc Antidiuretics
<b>Unit-2: Drugs Acting on Blood &amp; Blood-forming Agents</b>		<b>07</b>
<b>Hours</b>		
1.	06.07.2022	Pharmacology of Hemopoietics
Tutorial-2	07.07.2022	
2.	11.07.2022	Pharmacology of Hemopoietics
3.	12.07.2022	Pharmacology of Coagulants
4.	13.07.2022	Pharmacology of Anticoagulants
Tutorial-3	14.07.2022	
5.	18.07.2022	Pharmacology of Fibrinolytics
6.	19.07.2022	Pharmacology of Antiplatelets
7.	20.07.2022	Pharmacology of Plasma Volume Expanders
Tutorial-4	21.07.2022	

<b>Unit-3: Pharmacology of Drugs Acting on GIT</b>			<b>06</b>
<b>Hours</b>			
1.	25.07.2022	Pharmacology of Antiulcer Drugs	
2.	26.07.2022	Pharmacology of Antiulcer Drugs	
3.	27.07.2022	Pharmacology of Laxatives & Purgatives	
Tutorial-5	28.07.2022		
4.	01.08.2022	Pharmacology of Emetics & Antiemetics	
5.	02.08.2022	Pharmacology of Emetics & Antiemetics	
6.	03.08.2022	Appetizers, Carminatives & Digestants	
Tutorial-6	04.08.2022		
<b>Unit-4: Chemotherapy</b>			<b>09</b>
<b>Hours</b>			
1.	08.08.2022	Introduction, Classification & Mechanism of Chemotherapy	
2.	10.08.2022	Sulfonamides	
Tutorial-7	11.08.2022		
3.	16.08.2022	Cotrimoxazole	
4.	17.08.2022	Penicillin	
Tutorial-8	18.08.2022		
5.	22.08.2022	Penicillin	
6.	23.08.2022	Cephalosporins	
7.	24.08.2022	Tetracyclines	
Tutorial-8	25.08.2022	-	
8.	29.08.2022	Chloramphenicol	
9.	30.08.2022	Aminoglycosides	
Activity-1	01.09.2022	Test	

## **II SESSIONAL (29 Lectures + 02 Activities)**

<b>Unit-3: Chemotherapy (Cont...)</b>			<b>18 Hours</b>
1.	13.09.2022	Macrolides	
2.	14.09.2022	Quinolines & Fluroquinolines	
Tutorial- 1	15.09.2022		
3.	19.09.2022	Polyene & Polypeptide Antibiotics	
4.	20.09.2022	Antiprotozoal Drugs	
5.	21.09.2022	Anthelmintic Drugs	
Tutorial- 2	22.09.2022	-	
6.	26.09.2022	Antiviral Drugs	
7.	27.09.2022	Antiviral Drugs	
8.	28.10.2022	Antifungal Drugs	
Tutorial- 3	29.10.2022		
Tutorial- 4	06.10.2022		

9.	10.10.2022	Antifungal Drugs
10.	11.10.2022	Chemotherapy of Tuberculosis
11.	12.10.2022	Chemotherapy of Tuberculosis
Tutorial-5	13.10.2022	
12.	17.10.2022	Chemotherapy of leprosy
13.	18.10.2022	Chemotherapy of leprosy
14.	19.10.2022	Chemotherapy of Malaria
Tutorial-6	20.10.2022	
15.	26.10.2022	Chemotherapy of Malaria
Tutorial-7	27.10.2022	
16.	31.10.2022	Chemotherapy of Cancer
17.	01.11.2022	Chemotherapy of Cancer
18.	02.11.2022	Chemotherapy of Cancer
Tutorial-8	03.11.2022	
<b>Unit-5: Immunopharmacology</b>		<b>3</b>
<b>Hours</b>		
1.	07.11.2022	Pharmacology of Immunosuppressants
2.	08.11.2022	Pharmacology of Immunosuppressants
3.	09.11.2022	Pharmacology of Immunostimulants
Tutorial-9	10.11.2022	-
<b>Unit-6: Principles of Animal Toxicology</b>		<b>2 Hours</b>
1.	14.11.2022	Acute & Sub-acute Toxicity Study
2.	15.11.2022	Chronic Toxicity Study
<b>Unit-7: The dynamic cell: Structure &amp; functions of the components of the cell</b>		<b>6 Hours</b>
1.	16.11.2022	Cells & Macromolecules
Tutorial-10	17.11.2022	-
4.	23.11.2022	Chromosomes
Tutorial-11	24.11.2022	
5.	26.11.2022	DNA Replication in Prokaryotes
6.	27.11.2022	DNA Replication in Eukaryotes
Activity-1	28.11.2022	Test
Activity-2	01.12.2022	Test

### III SESSIONAL (24 Lectures + 04 Activities)

<b>Unit-7: The dynamic cell: Structure &amp; functions of the components of the cell</b>		<b>21</b>
<b>Hours</b>		
1.	12.12.2022	The Cell Cycle
2.	13.12.2022	The Cell Cycle
3.	14.12.2022	Cell Signaling

Tutorial-1	15.12.2022	
4.	19.12.2022	Cell Signaling
5.	20.12.2022	Biosensors
6.	21.12.2022	Genetic Code & Structure of Gene
Tutorial-2	22.12.2022	
7.	23.01.2023	Gene Expression in Prokaryotes
8.	24.01.2023	Gene Expression in eukaryotes
9.	25.01.2023	Protein Synthesis
10.	30.01.2023	Protein Synthesis
11.	31.01.2023	Processing of RNA
12.	01.02.2023	Transcription Factors
Tutorial-3		
13.	06.02.2023	Mutations
14.	07.02.2023	Mutations
15.	08.02.2023	Oncogenes
Tutorial-4	09.02.2023	
16.	13.02.2023	Tumor Suppressor Genes
17.	14.02.2023	Gene Sequencing
18.	15.02.2023	Gene Mapping
Tutorial-5	16.02.2023	
19.	20.02.2023	Gene Therapy
20.	21.02.2023	Gene Therapy
21.	22.02.2023	Recombinant DNA Technology
Tutorial-6	23.02.2023	
<b>Unit-9: Bio-Assay</b>		<b>03</b>
<b>Hours</b>		
1.	27.02.2023	Introduction & Scope of Bioassay
2.	28.02.2023	Principles of Bioassay
3.	01.03.2023	Types, Application & Limitations of Bioassay
Tutorial-7	02.03.2023	
Activity-1	06.03.2023	Test
Activity-2	07.03.2023	Test
Activity-3	08.03.2023	Test
Activity-4	09.03.2023	Test

### Text Books

1. Tripathi, K. D. Essentials of medical pharmacology. 4th Ed, 1999. Publisher: Jaypee, Delhi.
2. Satoskar, R.S. and Bhadarkar, S.D. Pharmacology and pharmacotherapeutics. 16th edition (single volume), 1999. Publisher: Popular, Dubai.

3. Rang, H.P. & Dale, M.M. Pharmacology. 4th edition, 1999. Publisher: Churchill Livingstone. Clinical Pharmacokinetics, Concepts and Applications: By Malcolm Rowland and Toezer.

### **Reference Books**

1. Gilman's The pharmacological Basis of therapeutics. 9th Ed, 1996. Publisher Mc Graw Hill, Pergamon press.
2. Craig, C.R.&Stitzel, R.E. Modern Pharmacology. Latest edition. Publisher: Little Brown.Co
3. Katzung, B.G. Basic and clinical pharmacology. Latest edition. Publisher: Prentice Hall, Int.
4. Shargel and Leon. Applied Biopharmaceutics and pharmacokinetics. Latest edition. Publisher: Prentice Hall, London.

## LECTURE PLAN - Practical

**SUBJECT** : PHARMACOLOGY II (Practical)  
**NAME OF THE STAFF** : Mr SARAVANAN J  
**DESIGNATION** : Assistant Professor, Department of Pharmacology  
**CONTACT DETAILS** : E- Mail: [getsarwan@jssuni.edu.in](mailto:getsarwan@jssuni.edu.in) Mobile: 9585625948

Sessional	Number of Practical (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practical X 3)
I	09	27
II	10	30
III	08	24
<b>Total Number of Practical/Hours</b>	27	81

### I SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Introduction to experimental Pharmacology	01.07.2022	30.06.2022
2.	Study of laboratory animals and their handling	08.07.2022	07.07.2022
3.	Study of laboratory appliances used in pharmacology	15.07.2022	14.07.2022
4.	Study of use of anesthetics in laboratory animals	22.07.2022	21.07.2022
5.	Study of different routes of administration of drugs in animals	29.07.2022	28.07.2022
6.	Study of analgesic activity of drug using eddy's hot plate	05.08.2022	04.08.2022
7.	Skeletal muscle relaxant activity of drugs using rotarod	12.08.2022	11.08.2022
8.	Locomotor activity of drugs using actophotometer	26.08.2022	18.08.2022
Repeat	Repetition of missed practicals if any		25.08.2022
<b>I Sessional Examination</b>		<b>02.09.2022</b>	<b>01.09.2022</b>

## II SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Effect of drug on rabbit eye	16.09.2022	15.09.2022
2.	Study of physiological salts solutions used in experimental pharmacology	23.09.2022	22.09.2022
3.	Effect of drug on frog heart	30.09.2022	29.09.2022
4.	To record a DRC of acetylcholine using isolated tissue preparation	07.10.2022	06.10.2022
5.	To record a DRC of histamine using isolated guinea pig ileum preparation	14.10.2022	13.10.2022
6.	Study of agonistic effect of drug on isolated tissue preparation	21.10.2022	20.10.2022
7.	Study of antagonistic effect of drug on isolated tissue preparation	28.10.2022	27.10.2022
8.	Bioassay of histamine using isolated guinea pig ileum preparation – Interpolation method	04.11.2022	03.11.2022
9.	Bioassay – interpolation method	11.11.2022	10.11.2022
Repeat	Repetition of missed practicals if any	25.11.2022	24.11.2022
<b>SECOND SESSIONAL EXAMINATION</b>		<b>02.12.2022</b>	<b>01.12.2022</b>

## III SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Bioassay of serotonin using isolated guinea pig ileum preparation – Three point method	16.12.2022	15.12.2022
2.	Bioassay of acetylcholine using isolated guinea pig ileum preparation – Three point method	23.12.2022	22.12.2022
3.	Anticonvulsant activity of drug using MES method	20.01.2023	19.01.2023
4.	Drug effect on the blood pressure, heart rate of dog	27.01.2023	02.02.2023
Repeat	Repetition of missed practicals if any	03.02.2023	02.02.2023
Repeat	Repetition of missed practicals if any	10.02.2023	09.02.2023
Repeat	Repetition of missed practicals if any	17.02.2023	16.02.2023
Repeat	Repetition of missed practicals if any	-	23.02.2023
<b>THIRD SESSIONAL EXAMINATION</b>		<b>03.03.2022</b>	<b>02.03.2022</b>
<b>Bonification of the Practical Record Note Book</b>		<b>10.03.2022</b>	<b>09.03.2022</b>

**Text books (Practical) :**

1. Kulkarni, S. K. and Dandia, P. C. Hand book of experimental pharmacology. Latest edition, Publisher: Vallab, Delhi.

**Reference books (Practical)**

1. Macleod, L.J. Pharmacological experiments on intact preparations. Latest edition, Publisher: Churchill livingstone.
2. Ghosh, M.N. Fundamentals of experimental pharmacology. Latest edition, Publisher: Scientific book agency, Kolkata.
3. Ian Kitchen. Textbook of in vitro practical pharmacology. Latest edition, Publisher: Black well Scientific.

## LECTURE PLAN – Theory

**SUBJECT** : Pharmaceutical Analysis  
**FACULTY** : Dr. JSK Nagarajan  
**DESIGNATION** : Associate Professor  
**CONTACT DETAILS** : [jsk.nagarajan@jssuni.edu.in](mailto:jsk.nagarajan@jssuni.edu.in), 9443149945

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	28	8	28	8
II	32	7	32	7
III	27	9	27	9
<b>Total No. of Hours</b>	<b>87</b>	<b>24</b>	<b>87</b>	<b>24</b>

### I SESSIONAL (28 Lectures + 08 Activities)

Lecture No.	Date	Lecture Details
	<b>28.06.2022</b>	<b>Orientation of the subject</b>
1.	29.06.2022	Intro of analysis
2.	30.06.2022	Intro of instrumental analysis
<b>Tutorial-1</b>	<b>04.07.2022</b>	<b>Activity -1</b>
<b>Chromatography:</b> 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		
<b>PAPER CHROMATOGRAPHY</b>		<b>02</b>
<b>HRS</b>		
.3	05.07.2022	Introduction, principle, types of paper chromatography, preparation techniques.
4	06.07.2022	Development techniques, applications.
<b>THIN LAYER CHROMATOGRAPHY</b>		<b>02HRS</b>
5.	07.07.2022	Introduction, Principle, Techniques
<b>Tutorial-2</b>	<b>11.07.2022</b>	<b>ACTIVITY -2</b>
6.	12.07.2022	Techniques, Rf value and applications.
<b>COLUMN CHROMATOGRAPHY</b>		<b>03</b>
<b>HRS</b>		
7.	13.07.2022	Adsorption column chromatography, Operational technique.

8.	14.07.2022	Frontal analysis and Elution analysis. Factors affecting column efficiency.
<b>Tutorial-3</b>	<b>18.07.2022</b>	<b>ACTIVITY-3</b>
9.	19.07.2022	Applications and partition chromatography.
<b>HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHY</b>		<b>02</b>
<b>HRS</b>		
10	20.07.2022	Introduction, theory
11	21.07.2022	Instrumentation, and applications.
<b>Tutorial-4</b>	<b>25.07.2022</b>	<b>ACTIVITY-4</b>
<b>HIGH PERFORMANCE LIQUID CHROMATOGRAPHY</b>		<b>02</b>
<b>HRS</b>		
12	26.07.2022	Introduction, Theory.
13	27.07.2022	Instrumentation
14	28.07.2022	Instrumentation and applications.
<b>Tutorial-5</b>	<b>01.08.2022</b>	<b>ACTIVITY-5</b>
<b>GAS CHROMATOGRAPHY</b>		<b>04 HRS</b>
15	02.08.2022	Introduction, theory, instrumentation..
16	03.08.2022	Carrier gases, types of columns, stationary phases in GLC & GSC..
17	04.08.2022	Detectors-Flame ionization detectors, electron capture detector, thermal conductivity detector.
<b>Tutorial-6</b>	<b>08.08.2022</b>	<b>ACTIVITY-6</b>
18	10.08.2022	Typical gas chromatogram, derivatisation techniques, programmed temperature, applications.
<b>ION-EXCHANGE CHROMATOGRAPHY</b>		<b>03</b>
<b>HRS</b>		
19	11.08.2022	Introduction, principles, types of ion exchange synthetic resins.
20	16.08.2022	Types of ion exchange synthetic resins, physical properties, factors affecting ion exchange.
21	17.08.2022	Methodology and applications.
<b>GEL FILTRATION &amp; AFFINITY CHROMATOGRAPHY</b>		<b>02</b>
<b>HRS</b>		
22	18.08.2022	Gel filtration applications.
<b>Tutorial-7</b>	<b>22.08.2022</b>	<b>ACTIVITY-7</b>
23	23.08.2022	Affinity Chromatography: Introduction, technique,
<b>ELECTROPHORESIS</b>		<b>02 HRS</b>
24	24.08.2022	Principles of Separation, Equipment for Paper
25	25.08.2022	Gel electrophoresis and Application
<b>Tutorial-8</b>	<b>29.08.2022</b>	<b>ACTIVITY-8</b>
26	30.08.2022	REVISION-1

27	01.09.2022	REVISION-2
<b>I SESSIONAL EXAM FROM 05.09.2022 TO 12.09.2022</b>		

## II SESSIONAL (32 Lectures + 07 Activities)

<b>Spectroscopy: Theoretical aspects, instrumentation, elements of interpretation of data/spectra and application of analytical techniques be discussed on:</b>		
<b>GENERAL</b>		<b>08 HRS</b>
1	13.09.2022	Theory of electronic, atomic spectra
2	14.09.2022	Theory of molecular spectra
3	15.09.2022	Fundamental laws of photometry, Beer-Lambert's Law, application and its deviation, limitation of Beer law
<b>Tutorial-9</b>	<b>19.09.2022</b>	<b>ACTIVITY-9</b>
4	20.09.2022	Application of the law to single and
5	21.09.2022	Multiple component analysis
6	22.09.2022	Measurement of equilibrium constant and rate constant by spectroscopy.
<b>Tutorial10</b>	<b>26.09.2022</b>	<b>ACTIVITY-10</b>
7	27.09.2022	Spectra of isolated chromophores, auxochromes, batho, hypso chromic shift, hyper & hypo chromic shift,.
8	28.09.2022	Solvent on absorption spectra, molecular structure & IR spectra
<b>INSTRUMENTATION- UV-VISIBLE</b>		<b>05</b>
<b>HRS</b>		
9	29.09.2022	Sources of U.V.-Visible radiations, collimating systems
10	06.10.2022	Monochromators, samples cells & Detectors-Photocell,
<b>Tuto-11</b>	<b>10.10.2022</b>	<b>ACTIVITY-11</b>
11	11.10.2022	Barrier layer cell, Phototube,
12	12.10.2022	Diode array, applications of U.V.-Visible spectroscopy in pharmacy.
13	13.10.2022	Spectrophotometric titrations
<b>FLUORIMETRY</b>		<b>04</b>
<b>HRS</b>		
14	18.10.2022	Principle, Theory, luminescence
15	19.10.2022	Factors affecting fluorescence, quenching. Instrumentation
16	20.10.2022	Applications, fluorescent indicators
17	26.10.2022	Study of pharmaceutically important compounds estimated by fluorimetry.
<b>FLAME PHOTOMETRY</b>		<b>04</b>
<b>HRS</b>		
18	27.10.2022	Principle, Theory, nebulisation, flame & flame temperature
<b>Turo-12</b>	<b>31.10.2022</b>	<b>ACTIVITY -12</b>
19	01.11.2022	Interferences, flame spectrometric techniques
20	02.11.2022	Instrumentation, and detectors

21	03.11.2022	Pharmaceutical applications
<b>Tuto - 13</b>	<b>07.11.2022</b>	<b>ACTIVITY-13</b>
<b>ATOMIC ABSORPTION SPECTROSCOPY</b>		<b>02</b>
<b>HRS</b>		
22	08.11.2022	Introduction, Theory, types of electrodes
23	09.11.2022	Instrumentation and applications
<b>IR SPECTROSCOPY</b>		<b>06 HRS</b>
24	10.11.2022	Vibrational transition and frequency, Structure correlations, Infrared absorption bands,
<b>Tuto-14</b>	<b>14.11.2022</b>	<b>ACTIVITY-14</b>
25	15.11.2022	Instrumentation–IR spectrometer – sources of IR, Collimating systems,
26	16.11.2022	Monochromators, sample cells, sample handling in IR spectroscopy
27	17.11.2022	Detectors Thermocouple, Golay Cells, Thermistor,
28	23.11.2022	Bolometer, Pyroelectric detector,.
29	24.11.2022	Applications of IR in pharmacy
<b>Tuto-15</b>	<b>28.11.2022</b>	<b>ACTIVITY-15</b>
30	29.11.2022	REVISION-1
31	30.11.2022	REVISION-2
32	01.12.2022	REVISION-3
<b>II SESSIONAL EXAMS FROM 05.12.2022 TO 10.12.2022</b>		

### III SESSIONAL (27 Lectures + 09 Activities)

<b>Tuto-16</b>	<b>12.12.2022</b>	<b>ACTIVITY-16</b>
<b>MASS SPECTROSCOPY</b>		<b>02</b>
<b>HRS</b>		
1	13.12.2022	Fragmentation, types of ions produced
2	14.12.2022	Mass spectrum and applications
<b>NMR SPECTROSCOPY</b>		<b>02</b>
<b>HRS</b>		
3	15.12.2022	Introduction and principle
4	16.12.2022	Theoretical aspects and applications
<b>Tuto-17</b>	<b>19.12.2022</b>	<b>ACTIVITY-17</b>
<b>Electrometric Titrations: Theoretical aspects, instrumentation, interpretation of data/spectra and analytical applications be discussed on the following topics</b>		
<b>POTENTIOMETRIC TITRATIONS</b>		<b>05 HRS</b>
5	20.12.2022	Electrical potential, electrochemical cell
6	21.12.2022	Reference electrodes, indicator electrodes
7	22.12.2022	Measurement of potential and pH, construction and working of electrodes
8	19.01.2023	Potentiometric titrations, methods of detecting end point

<b>Tuto-18</b>	<b>23.01.2023</b>	<b>ACTIVITY-18</b>
9	24.01.2023	Karl Fischer titration
<b>CONDUCTOMETRIC TITRATIONS</b>		<b>03 HRS</b>
<b>10</b>	25.01.2023	Introduction and principle
<b>Tuto-19</b>	<b>30.01.2023</b>	<b>ACTIVITY-19</b>
11	01.02.2023	Conductivity cell, conductometric titrations
12	02.02.2023	Application
<b>Tuto-20</b>	<b>06.02.2023</b>	<b>ACTIVITY-20</b>
<b>AMPEROMETRIC TITRATIONS</b>		<b>04 HRS</b>
13	07.02.2023	Introduction and principle
14	08.02.2023	Types of electrodes used, reference and indicator electrode
15	09.02.2023	Instrumentation, titration procedure, advantages and disadvantages
<b>Tuto-21</b>	<b>13.02.2023</b>	<b>ACTIVITY-21</b>
16	14.02.2023	Amperometry over Potentiometry. Pharma applications
<b>QUALITY ASSURANCE</b>		<b>03</b>
<b>HRS</b>		
17	15.02.2023	Introduction, sources of quality variation, control of quality-variation.
18	16.02.2023	Validation methods- quality of equipment, validation of equipment
<b>Tuto-22</b>	<b>20.02.2023</b>	<b>ACTIVITY-22</b>
19	21.02.2023	validation of analytical instruments and calibration
20	22.02.2023	Validation of analytical instruments & Calibration
21	23.02.2023	Revision-1
<b>Tuto-23</b>	<b>27.02.2023</b>	<b>ACTIVITY-23</b>
22	28.02.2023	Revision Test-1
23	01.03.2023	Revision -2
24	02.03.2023	Revision Test -2
<b>Tuto-24</b>	<b>06.03.2023</b>	<b>ACTIVITY-24</b>
25	07.03.2023	Revision-3
26	08.03.2023	Revision Test-3
27	09.03.2023	Revision Test-4

### Text books

Instrumental methods of analysis by Willard, Merrit, Dean and Settle 6th edition  
 Practical Pharmaceutical Chemistry Vol-II- Beckett and Stenlake 3rd edition

### Reference books

Text book of quantitative chemical analysis by A.I.Vogel  
 Text book of Pharmaceutical Analysis by K.A.Cannors  
 Pharmaceutical analysis by Skoog and West.  
 Spectroscopy by William Kemp.

## LECTURE PLAN - Practical

**SUBJECT** : PHARMACEUTICAL ANALYSIS (Practical)  
**NAME OF THE STAFF** : Dr JSK NAGARAJAN  
**DESIGNATION** : Associate Professor  
**CONTACT DETAILS** : E- Mail: [jsk.nagarajan@jssuni.edu.in](mailto:jsk.nagarajan@jssuni.edu.in) Mobile: 9443149945

Sessional	Number of Practical (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practical X 3)
I	09	27
II	09	27
III	09	27
<b>Total Number of Practical/Hours</b>	<b>27</b>	<b>81</b>

### I SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch II	Batch I
1	Intro of pharm analysis	27.06.2022	28.06.2022
2	Solubility Test	04.07.2022	05.07.2022
3	Determination of absorption maxima of Pot. Permanganate & Salicylic acid	11.07.2022	12.07.2022
4	Determination of Lamda Max and Linearity of Methylene blue – (Based on Molarity)	18.07.2022	19.07.2022
5	Determination of Lamda max and linearity of Potassium Permanganate – (Based on percentage)	25.07.2022	26.07.2022
6	Estimation of Salicylic acid by Visible spectroscopy (Colorimetry–by using Ferric chloride reagent)	01.08.2022	02.08.2022
7	Colorimetric estimation of Supha drugs using BMR	08.08.2022	16.08.2022
8	Assay of Paracetamol tablets by UV spectrophotometry	22.08.2022	23.08.2022
9	Determination of ibuprofen & paracetamol by simultaneous equation method	29.08.2022	30.08.2022
<b>I Sessional Examination</b>		<b>05.09.2022</b>	<b>06.09.2022</b>

**II SESSIONAL**

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Determination of diclofenac & paracetamol by simultaneous equation method	12.09.2022	13.09.2022
2.	Effect of ph and solvent on the UV spectrum of given compound	19.09.2022	20.09.2022
3.	Estimation of quinine by Fluorimetry	26.09.2022	27.09.2022
4.	Estimation of riboflavin by Fluorimetry	10.10.2022	11.10.2022
5.	Study of quenching effects in Fluorimetry by iodide ions	17.10.2022	18.10.2022
6.	Determination of sodium ion by flame photometry	31.10.2022	01.11.2022
7.	Determination of potassium ion by flame photometry	07.11.2022	08.11.2022
8.	Determination of sodium and potassium ion by flame photometry	14.11.2022	15.11.2022
9.	Determination of chloride by nephloturbidimetry	28.11.2022	29.11.2022
<b>SECOND SESSIONAL EXAMINATION</b>		<b>05.12.2022</b>	<b>06.12.2022</b>

**III SESSIONAL**

Practical No.	Name of the Experiment	Date(s)	
		Batch II	Batch I
1	Determination of sulphate by nephloturbidimetry	12.12.2022	13.12.2022
2	Separation and identification of amino acids by paper chromatography	19.12.2022	20.12.2022
3	Separation and identification of amino acids by paper chromatography (Radial)	24.01.2023	25.01.2023
4	Separation and identification of amino acids by tlc	30.01.2022	31.01.2023
5	HPLC - demo	06.02.2023	07.02.2023
6	IR interpretation of drug samples with different functional groups	13.02.2023	14.02.2023
7	IR interpretation of drug samples with different functional groups	20.02.2023	21.02.2023

8	Conductometric titration of mixture of acids with a strong base	27.02.2023	28.02.2023
9	Potentiometric titration of strong acid with a strongbase	06.03.2023	07.03.2023
<b>THIRD SESSIONAL EXAMINATION</b>		<b>13.03.2022</b>	<b>14.03.2022</b>
<b>Bonification of the Practical Record Note Book</b>		<b>20.03.2022</b>	<b>21.03.2022</b>

## LECTURE PLAN – Theory

**SUBJECT** : Pharmacotherapeutics II (Theory)  
**FACULTY** : Dr G K Sadagoban., Pharm.D  
**DESIGNATION** : Lecturer , Department of Pharmacy Practice  
**CONTACT DETAILS** : E- Mail: [sadagoban@jssuni.edu.in](mailto:sadagoban@jssuni.edu.in) Mobile: 9894876656

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
	Pharmacotherapeutics II			
I	25	03	28	09
II	26	03	29	11
III	23	03	26	07
<b>Total Number of Hours</b>	74	09	83	27

### I SESSIONAL (25 Lectures + 03 Activities)

Lecture No.	Date	Lecture Details
<b>Pharmacptherapeutics II</b>		<b>25 Hours</b>
<b>Unit-1: Infectious Disease</b>		<b>25 Hours</b>
1.	28.06.2022	Orientation to the subject
	28.06.2022	Guidelines for the rational use of antibiotics and surgical prophylaxis.
2.	29.07.2022	Tuberculosis
3.	29.07.2022	Tuberculosis Continued...
4.	05.07.2022	Meningitis
5.	06.07.2022	Meningitis Continued...
6.	06.07.2022	Respiratory tract infections
7.	12.07.2022	Respiratory tract infections Continued...
8.	13.07.2022	Gastroenteritis
9.	13.07.2022	Gastroenteritis Continued...
10.	19.07.2022	Endocarditis
11.	20.07.2022	Endocarditis Continued...
12.	20.07.2022	Septicemia
13.	26.07.2022	Septicema Continued...

14.	27.07.2022	Urinary tract infections
15.	27.07.2022	Urinary tract infections Continued...
Test	30.07.2022	Monthly test
16.	02.08.2022	Protozoan infection – Malaria
17.	03.08.2022	HIV and Opportunistic infections
18.	04.08.2022	HIV and Opportunistic infections Continued...
19.	04.08.2022	Fungal infections
20.	10.08.2022	Fungal infections Continued...
21.	10.08.2022	Viral infections
22.	16.08.2022	Gonorrhoea
23.	17.08.2022	Gonorrhoea Continued...
24.	17.08.2022	Syphilis
25.	23.08.2022	Syphilis Continued...
Activity -1	24.08.2022	Online Course
Activity -2	24.08.2022	MCQ test
Activity -3	30.08.2022	Assignment
Test	27.08.2022	Monthly test

## II SESSIONAL (26 Lectures + 03 Activities)

<b>PHARMACOTHERAPY II</b>		<b>26 Hours</b>
<b>Unit-2: Musculoskeletal Disorders</b>		<b>15 Hours</b>
1.	13.09.2022	Rheumatoid arthritis
2.	14.09.2022	Rheumatoid arthritis Continued...
3.	14.09.2022	Rheumatoid arthritis Continued...
4.	20.09.2022	Osteoarthritis
5.	21.09.2022	Osteoarthritis Continued...
6.	21.09.2022	Osteoarthritis Continued...
Test	24.09.2022	Monthly test
7.	27.09.2022	Gout
8.	28.09.2022	Gout Continued...
9.	28.09.2022	Gout Continued...
10.	11.10.2022	Spondylitis
11.	12.10.2022	Spondylitis Continued...
12.	12.10.2022	Spondylitis Continued...
13.	18.10.2022	Systemic lupus erythematosus
14.	19.10.2022	Systemic lupus erythematosus Continued...
15.	19.10.2022	Systemic lupus erythematosus Continued...
<b>Unit-3: Renal system</b>		<b>11 Hours</b>
1.	26.10.2022	Acute renal failure
2.	26.10.2022	Acute renal failure Continued...

Test	29.10.2022	Montly test
3.	01.11.2022	Acute renal failure Continued...
4.	02.11.2022	Chronic renal failure
5.	02.11.2022	Chronic renal failure Continued...
6.	08.11.2022	Chronic renal failure Continued...
7.	09.11.2022	Renal dialysis
8.	09.11.2022	Renal dialysis Continued...
9.	15.11.2022	Drug induced renal disorders
10.	16.11.2022	Drug induced renal disorders Continued...
11.	16.11.2022	Drug induced renal disorders Continued...
12.	23.11.2022	Revision
13.	23.11.2022	Revision
Activity-1	29.11.2022	Online course
Activity-2	30.11.2022	MCQ test
Activity-3	30.11.2022	Assignment
Test	26.11.2022	Monthly test

### III SESSIONAL (23 Lectures + 03 Activities)

<b>PHARMACOTHERAPY II</b>		<b>23 Hours</b>
<b>Unit-4: Oncology</b>		<b>14 Hours</b>
22.	13.12.2022	Basic principles of cancer therapy
23.	14.12.2022	Basic principles of cancer therapy Continued...
24.	14.12.2022	General introduction to cancer chemotherapeutic agents
Test	17.12.2022	Monthly test
25.	20.12.2022	General introduction to cancer chemotherapeutic agents Continued...
26.	21.12.2022	Chemotherapy of breast cancer
27.	21.01.2023	Chemotherapy of breast cancer Continued...
28.	24.01.2023	Chemotherapy of breast cancer Continued...
29.	25.01.2023	Chemotherapy of leukemia
30.	25.01.2023	Chemotherapy of leukemia Continued...
31.	31.01.2023	Chemotherapy of leukemia Continued...
32.	01.02.2023	Management of chemotherapy induced nausea and emesis
33.	01.02.2023	Management of chemotherapy induced nausea and emesis Continued...
34.	07.02.2023	Management of chemotherapy induced nausea and emesis Continued...
35.	08.02.2023	Software and case study
<b>Unit-5: Dermatology</b>		<b>09 Hours</b>

4.	08.02.2023	Psoriasis
5.	14.02.2023	Psoriasis Continued...
6.	15.02.2023	Psoriasis Continued...
7.	15.02.2023	Scabies
Test	18.02.2023	Monthly test
8.	21.02.2023	Scabies Continued...
9.	22.02.2023	Eczema
10.	22.02.2023	Eczema Continued...
11.	28.02.2023	Impetigo
12.	01.03.2023	Impetigo Continued...
13.	01.03.2023	Revision
Activity-1	07.03.2023	Online course
Activity-2	08.03.2023	MCQ test
Activity-3	08.03.2023	Assignment
Test	04.03.2022	Monthly test

### **Text Books**

1. Clinical Pharmacy and Therapeutics - Walker and Whittlesea, Churchill Livingstone Publication

### **Reference Books**

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

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## LECTURE PLAN - Practical

**SUBJECT** : Pharmacotherapeutics II (Theory)  
**FACULTY** : Dr G K Sadagoban., Pharm.D  
**DESIGNATION** : Lecturer , Department of Pharmacy Practice  
**CONTACT DETAILS** : E- Mail: [sadagoban@jssuni.edu.in](mailto:sadagoban@jssuni.edu.in) Mobile: 9894876656

Sessional	Number of Practical (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practical X 3)
I	09	27
II	11	33
III	09	27
<b>Total Number of Practical/Hours</b>	29	87

### I SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
9.	Introduction to Case Study	01.07.2022	02.07.2022
10.	Urinary tract infections	08.07.2022	09.07.2022
11.	Respiratory tract infections	15.07.2022	16.07.2022
12.	Gastroenteritis	22.07.2022	23.07.2022
13.	Endocarditis	29.07.2022	30.07.2022
14.	Septicemia	05.08.2022	06.08.2022
15.	HIV	12.08.2022	13.08.2022
16.	Simulation	26.08.2022	27.08.2022
<b>I Sessional Examination</b>		<b>02.09.2022</b>	<b>03.09.2022</b>

### II SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
10.	Rheumatoid arthritis	16.09.2022	17.09.2022
11.	Osteoarthritis	23.09.2022	24.09.2022
12.	Acute Renal failure	30.09.2022	01.10.2022
13.	Chronic Renal Failure	07.10.2022	08.10.2022
14.	Simulation	21.10.2022	22.10.2022

15.	Simulation	28.10.2022	29.10.2022
16.	Simulation	04.11.2022	05.11.2022
17.	Simulation	25.11.2022	26.11.2022
<b>SECOND SESSIONAL EXAMINATION</b>		<b>02.12.2022</b>	<b>03.12.2022</b>

### III SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
5.	Breast Cancer	16.12.2022	15.12.2022
6.	Leukemia	23.12.2022	22.12.2022
7.	Psoriasis	20.01.2023	21.01.2023
8.	Impetigo	03.02.2023	11.02.2023
9.	Simulation	17.02.2023	18.02.2023
<b>THIRD SESSIONAL EXAMINATION</b>		<b>03.03.2023</b>	<b>04.03.2023</b>
<b>Bonification of the Practical Record Note Book</b>			

## LECTURE PLAN – Theory

**SUBJECT** : PHARMACEUTICAL JURISPRUDENCE (Theory)  
**FACULTY** : Dr Shanmugam Ramaswamy  
**DESIGNATION** : Co-Ordinator- TIFAC CORE HD, Department of Pharmacognosy  
**CONTACT DETAILS** : E- Mail: [shanmugamr@jssuni.edu.in](mailto:shanmugamr@jssuni.edu.in) Mobile: 9843454943

Sessional	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	01	16	09
II	01	20	09
III	01	16	10
<b>Total Number of Hours</b>	03	62	27

### I SESSIONAL (16 Lectures + 01 Activities)

Lecture No.	Date	Lecture Details	
<b>Unit-1: Pharmaceutical Legislations – A brief review.</b>			<b>02</b>
<b>Hours</b>			
1.	28.06.2022	Introduction, Study of drugs enquiry committee, Health survey and development committee	
2.	01.07.2022	Hathi committee and Mudaliar committee	
Tutorial-1	02.07.2022	Group Discussion	
<b>Unit-2: Code of Pharmaceutical ethics</b>			<b>02</b>
<b>Hours</b>			
2.	05.07.2022	Definition, Pharmacist in relation to his job and trade.	
3.	08.07.2022	Pharmacist in relation to his medical profession and his profession, Pharmacist's oath	
Tutorial-2	09.07.2022	Class Test	
<b>Unit-3: Drugs and Cosmetics Act, 1940 and its rules 1945.</b>			<b>22</b>
<b>Hours</b>			
1.	19.07.2022	Objectives and Definitions	
2.	22.07.2022	Legal definitions of schedules to the act and rules	
Tutorial-3	23.07.2022		
3.	26.07.2022	Import of drugs – Classes of drugs and cosmetics prohibited from import,	
4.	29.07.2022	Import under license or permit	

Tutorial-4	30.07.2022	
5.	02.08.2022	Offences and penalties.
6.	05.08.2022	- Manufacture of drugs – Prohibition of manufacture and sale of certain drugs
Tutorial-5	06.08.2022	
7.	12.08.2022	Conditions for grant of license and conditions of license for manufacture of drugs
Tutorial-6	13.08.2022	
8.	16.08.2022	Manufacture of drugs for test, examination and analysis
Tutorial-7	20.08.2022	
9.	23.08.2022	manufacture of new drug, loan license and repacking license.
10.	26.08.2022	Detailed study of schedule M, N and Y
Tutorial-8	27.08.2022	
11.	30.08.2022	Offences and penalties
12.	02.09.2022	Sale of Drugs – Wholesale, Retail sale and Restricted license.
Tutorial-9	03.09.2022	
<b>II SESSIONAL (29 Lectures + 02 Activities)</b>		
13.	13.09.2022	Offences and penalties
14.	16.09.2022	Labeling & Packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics
15	20.09.2022	List of permitted colors.
16	23.09.2022	Offences and penalties
Tutorial-10	24.09.2022	Group Discussion
17	27.09.2022	Administration of the act and rules
18	30.08.2022	Drugs Technical Advisory Board
Tutorial-11	01.10.2022	

19	07.10.2022	Central drugs Laboratory
Tutorial-12	08.10.2022	
20	11.10.2022	Drugs Consultative Committee
21	14.10.2022	Government analysts
Tutorial-13	15.10.2022	
22	18.10.2022	Licensing authorities
23	21.10.2022	controlling authorities
Tutorial-14	22.10.2022	
24	28.10.2022	Drug Inspectors
<b>Unit-4: Pharmacy Act –1948.</b>		<b>05 Hours</b>
Tutorial-15	29.10.2022	
1	01.11.2022	Objectives and Definitions
2	04.11.2022	Pharmacy Council of India; its constitution and functions
Tutorial-16	05.11.2022	
3	08.11.2022	Education Regulations, State pharmacy councils; its constitution and functions
4	11.11.2022	Joint state pharmacy councils; its constitution and functions
Tutorial-17	12.11.2022	
5	15.11.2022	Registration of Pharmacists, Offences, Penalties
<b>Unit-5: Medicinal and Toilet Preparation Act –1955.</b>		<b>04 Hours</b>
1	25.11.2022	Objectives, Definitions, Licensing, Manufacture In bond and Outside bond
Tutorial-18	26.11.2022	
2	29.11.2022	Export of alcoholic preparations
3	02.12.2022	Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations
<b>III SESSIONAL (29 Lectures + 02 Activities)</b>		
4	13.12.2022	Offences and Penalties
<b>Unit-6: Narcotic Drugs and Psychotropic substances Act-1985 and Rules.</b>		<b>04 Hours</b>
1	16.12.2022	Objectives, Definitions, Authorities and Officers
Tutorial-19	17.12.2022	
2	20.12.2022	Constitution and Functions of narcotic & Psychotropic Consultative Committee
3	23.12.2022	National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation
Tutorial-20	24.12.2022	Group Discussion
4	27.12.2022	production of poppy straw, manufacture, sale and export of opium, Offences and Penalties

<b>Unit-7: Study of Salient Features of Drugs and magic remedies Act and its rules.</b>			<b>02</b>
<b>Hours</b>			
1	30.12.2022	Objectives, Definitions, Prohibition of certain advertisements	
Tutorial-21	31.12.2022		
2	03.01.2023	Classes of Exempted advertisements, Offences and Penalties	
<b>Unit-8: Study of Salient Features of Drugs and magic remedies Act and its rules.</b>			<b>02</b>
<b>Hours</b>			
1	06.01.2023	- Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, Implementation of prices Fixed/ revised.	
Tutorial-22	07.01.2023		
2	10.01.2023	- Pharmaceutical Policy 2002: Objectives, Approaches in the review, Salient features of Pharmaceutical Policy 2002.	
<b>Unit-9: Prevention Of Cruelty to animals Act-19</b>			<b>03 Hours</b>
1	13.01.2023	Objectives, Definitions, Institutional Animal Ethics Committee, Breeding and Stocking of Animals	
Tutorial-23	14.01.2023		
2	17.01.2023	Performance of Experiments, Transfer and acquisition of animals for experiment	
3	20.01.2023	Records, Power to suspend or revoke registration, Offences and Penalties	
Tutorial-24	21.01.2023		
<b>Unit-10: Patents &amp; design Act-1970.</b>			<b>03 Hours</b>
1	24.01.2023	Objectives, definitions, Types of patent, PCT, Patentable and not patentable inventions, Applications for patents, Term of patent	
2	27.01.2023	revocation of patents, compulsory licensing, Offences and penalties.	
Tutorial-25	28.01.2023		
3	31.01.2023	Registration of designs, copyright, prohibition of certain designs, cancellation of designs, Offences and penalties.	
<b>Unit-11: Brief study of prescription and Non-prescription Products.</b>			<b>01 Hours</b>
1	03.02.2023	Brief study of prescription and Non-prescription Products	
	07.02.2023	Revision	
	10.02.2023	Revision	
Tutorial-26	11.02.2023	Revision	

	14.02.2023	Revision
	17.02.2023	Revision
Tutorial-27	18.02.2023	Revision
	21.02.2023	Revision
	28.02.2023	Revision
	03.03.2023	Revision
Tutorial-28	04.03.2023	Revision
	07.03.2023	Revision
	10.03.2023	Revision

### **Text Books**

1. Mithal , B M. Textbook of Forensic Pharmacy. Calcutta :National; 1988.

### **Reference Books**

1. Singh, KK, editor. Beotra's the Laws of Drugs, Medicines & cosmetics. Allahabad: Law Book House; 1984.
2. Jain, NK. A Textbook of forensic pharmacy. Delhi: Vallabh prakashan ; 1995.
3. Reports of the Pharmaceutical enquiry Committee
4. I.D.M.A., Mumbai. DPCO 1995
5. Various reports of Amendments.
6. Deshapande, S.W. The drugs and magic remedies act 1954 and rules 1955. Mumbai: Susmit Publications; 1998.
7. Eastern Book Company .The narcotic and psychotropic substances act 1985, Lucknow: Eastern; 1987.

## LECTURE PLAN – Theory

**SUBJECT** : MEDICINAL CHEMISTRY (Theory)  
**FACULTY** : Dr JUBIE S  
**DESIGNATION** : Associate Professor, Department of Pharmaceutical Chemistry  
**CONTACT DETAILS** : E- Mail: [jubie@jssuni.edu.in](mailto:jubie@jssuni.edu.in) Mobile: 9894618588

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	24	02	26	10
II	29	02	31	11
III	22	05	27	10
<b>Total Number of Hours</b>	75	09	84	31

### I SESSIONAL (24 Lectures + 02 Activities)

Activity-1	27.06.2022	Introduction to Medicinal Chemistry		
<b>Unit-I: Modern Concept of Rational Drug Design</b>				<b>04 Hours</b>
1.	29.06.2022	A brief introduction to prodrug & drug latentiation		
Tutorial-1	29.06.2022	-		
2.	30.06.2022	A brief introduction to prodrug & drug latentiation (cont...)		
3.	04.07.2022	Combinatorial chemistry		
4.	06.07.2022	General pathways & factors affecting drug metabolism.		
Tutorial-2	06.07.2022	-		
<b>Unit-II:</b> A study of the development of the following classes of drug including SAR, mechanism of action, synthesis of important compounds (marked with asteric*), brand names of important marketed products and their side effects				
<b>1: Anti-infective agents</b>				<b>15 Hours</b>
1.	07.07.2022	Local anti-infective agents: Alcohols: isopropyl alcohol Phenols: cresols, hexyl resorcinol		
Tutorial-3	07.07.2022	-		
2.	11.07.2022	Cationic surfactants: benzalkonium chloride, cetyl pyridinium bromide Nitrofurans: nitrofurazone, furazolidone		
3.	13.07.2022	Antifungal agents: Azoles: miconazole, ketoconazole, fluconazole		
Tutorial-4	13.07.2022	-		
4.	14.07.2022	Miscellaneous: tolnaftate, naftifine Antifungal Antibiotics: amphotericin, nystatin, griseofulvin		

5.	18.07.2022	Urinary tract anti-infectives: SAR of quinolone antibacterial agents
6.	20.07.2022	Norfloxacin, ciprofloxacin*, sparfloxacin, ofloxacin
Tutorial-5	20.07.2022	-
Activity-2	21.07.2022	Class test 1
7.	25.07.2022	Antitubercular agents: Management of tuberculosis, Synthetic anti TB agents: INH*, Pyrizinamide, ethambutol
8.	27.07.2022	Anti TB antibiotics: rifampin, capreomycin
Tutorial-6	27.07.2022	-
9.	28.07.2022	Antiviral agents and Anti AIDS agents: amantadine, acyclovir, trifluridine
10.	01.08.2022	Zidovudine, stavudine
11.	03.08.2022	Antiprotozoal agents: Introduction to protozoal diseases and causative organisms.
Tutorial-7	03.08.2022	-
12.	04.08.2022	Metronidazole, diloxanide furoate,
13.	08.08.2022	Dehydroemetine, nifurtimox
14.	10.08.2022	Anthelmintics: Benzimidazoles: mebendazole, albendazole
Tutorial-8	10.08.2022	-
15.	11.08.2022	Piperazine, diethylcarbamazine, ivermectin
<b>2: Sulfonamides and sulfones</b>		<b>05</b>
<b>Hours</b>		
1.	17.08.2022	History and development of sulfonamides,
Tutorial-9	17.08.2022	-
2.	22.08.2022	SAR and mechanism of action of Sulfonamides,
3.	24.08.2022	pKa of Sulfas and Crystalluria.
Tutorial-10	24.08.2022	-
4.	25.08.2022	Sulfamethoxazole, sulfisoxazole, sulfacetamide*, sulfasalazine Folate reductase inhibitors:
5.	01.09.2022	Trimethoprim*, synergistic action of cotrimoxazole. Sulfones: dapsone

## II SESSIONAL (29 Lectures + 02 Activities)

<b>3: Antimalarials</b>		<b>05</b>
<b>Hours</b>		
1.	14.09.2022	Etiology of malaria,
Tutorial- 1	14.09.2022	-
2.	15.09.2022	SAR and mechanism of action of quinoline Antimalarials
3.	19.09.2022	Quinine sulphate, Chloroquine phosphate, amodiaquine,
4.	21.09.2022	pamaquine*, primaquine, Quinacrine
Tutorial- 2	21.09.2022	-

5.	22.09.2022	Chloroguanide, cycloguanil, pyrimethamine
<b>4: Antibiotics</b>		<b>12</b>
<b>Hours</b>		
1.	26.09.2022	Historical background and classification of antibiotics.
2.	28.09.2022	Beta lactam antibiotics: Development of acid resistant and extended spectrum Penicillins.
Tutorial-3	28.09.2022	-
3.	29.09.2022	Penicillin G, ampicillin, amoxicillin, cloxacillin
4.	06.10.2022	Beta lactamase inhibitors: clavulanic acid, thienamycin
5.	10.10.2022	Cephalosporins: cephalexin, cefadroxil, cefuroxime
6.	12.10.2022	Aminoglycosids: streptomycin, neomycin
Tutorial-4	12.10.2022	-
7.	13.10.2022	amikacin, gentamicin
8.	17.10.2022	Tetracyclines: Chemistry and SAR of tetracyclines
9.	19.10.2022	chlortetracycline, doxycycline, Minocycline.
Tutorial-5	19.10.2022	-
10.	20.10.2022	Macrolides: erythromycin, azithromycin
11.	26.10.2022	Miscellaneous: clindamycin, bacitracin,
Tutorial-6	26.10.2022	-
12.	27.10.2022	chloramphenicol*
<b>Unit-5: Antineoplastic agents</b>		<b>06</b>
<b>Hours</b>		
1.	31.10.2022	Historical background and classification of antineoplastic agents
2.	02.11.2022	Alkylating agents: cyclophosphamide, mechlorethamine, cholrambucil
Tutorial-7	02.11.2022	-
3.	03.11.2022	Antimetabolites: mercaptopurine, flurouracil, methotrexate
4.	07.11.2022	Antibiotics: dactinomycin, mitomycin, streptozocin
5.	09.11.2022	Plant products: etoposide, taxol, vincristine and vinblastine
Tutorial-8	09.11.2022	-
6.	10.11.2022	Miscellaneous: cisplatin, interferons
<b>Unit-6: Cardiovascular agents</b>		<b>06</b>
<b>Hours</b>		
Activity -1	14.11.2022	Class test-1
1.	16.11.2022	Antianginal agents and vasodilators
Tutorial-9	16.11.2022	-
2.	17.11.2022	Nitrovasodilators: amyl nitrite, isosorbide dinitrate
3.	23.11.2022	Calcium channel blockers: verapamil, diltiazem
Tutorial-10	23.11.2022	-

4.	24.11.2022	Antiarrhythmic agents: Class I: quinidine, phenytoin, lidocaine, encainide
5.	28.11.2022	Class II: beta blockers- propranolol Class III: amiodarone
6.	30.11.2022	Class IV: Calcium channel blockers: verapamil, diltiazem
Tutorial-11	30.11.2022	-
Activity 2	01.12.2022	Revision Class for II sessional examination

### III SESSIONAL (22 Lectures + 05 Activities)

<b>Unit-6: Cardiovascular agents (cont...)</b>		<b>06</b>
<b>Hours</b>		
1.	12.12.2022	Antihypertensive agents: betablockers: propranolol*, ACE inhibitors: captopril, enalapril
2.	14.12.2022	Angiotensin antagonists: losartan Calcium channel blockers: nifedipine, amlodipine
Tutorial-1	14.12.2022	-
3.	15.12.2022	Adrenergic agents: clonidine, methyl dopa Adrenergic antagonists: prazosin, reserpin
4.	19.12.2022	Antihyperlipidemic agents: types of hyperlipoproteinemia clofibrate, fenofibrate
5.	21.12.2022	cholestyramine, lovastatin, simvastatin
Tutorial-2	21.12.2022	-
6.	22.12.2022	Anticoagulants: warfarin, dicumarol, anisindione
<b>Unit-7: Hypoglycemic agents:</b>		<b>03</b>
<b>Hours</b>		
1.	18.01.2023	History, development and SAR of sulfonylureas: Biguanides: metformin, phenformin Miscellaneous: acarbose, miglitol
Tutorial-3	18.01.2023	-
2.	19.01.2023	tolbutamide*, chlorpropamide, glipizide Metaglinides: repaglinide
3.	23.01.2023	Thiazolidiones: rosiglitazone, pioglitazone
<b>Unit-8: Thyroid and Antithyroid agents:</b>		<b>01</b>
<b>Hour</b>		
1.	25.01.2023	L-thyroxine, L-threonine, Propyl thiouracil, methimazol
Tutorial-4	25.01.2023	-
<b>Unit-9: Diuretics:</b>		<b>05 Hours</b>
1.	30.01.2023	Carbonic anhydrase inhibitors: acetazolamide
2.	01.02.2023	Thiazide diuretics: SAR of thiazide diuretics, chlorthiazide, benzothiazide, xipamide, chlorthalidone*
Tutorial-5	01.02.2023	-
3.	02.02.2023	Loop diuretics: frusemide*, ethacrynic acid
4.	06.02.2023	Potassium sparing diuretics: spiranolactone, amiloride

Tutorial-6	08.02.2023	-
5.	09.02.2023	Miscellaneous: mannitol
<b>Unit-10: Diagnostic agents</b>		<b>02 Hours</b>
1	13.02.2023	Iodipamide, diatrizoate sodium Amino hippurate,
2.	15.02.2023	sulfobromophthalein, fluorescein sodium
Tutorial-7	15.02.2023	-
<b>Unit-11: Steroidal Hormones and Adrenocorticoids</b>		<b>05 Hours</b>
1.	16.02.2023	Estrogens: estradiol,
2.	20.02.2023	DES norethindrone
3.	22.02.2023	Progestines: progesterone,
Tutorial-8	22.02.2023	-
4.	23.02.2023	Testosterone, nandralone
5.	27.02.2023	Betamethasone, prednisolone, beclomethasone
Activity-1	01.03.2023	MCQs discussion
Tutorial-9	01.03.2023	-
Activity-2	02.03.2023	MCQs discussion
Activity-3	06.03.2023	Discussion on previous university exam question papers
Activity-4	08.03.2023	Revision Class
Tutorial-10	08.03.2023	-
Activity-5	09.03.2023	Revision Class

#### Text books

1. Wilson and Gisvold's Organic Medicinal and Pharmaceutical chemistry.
2. Foye's Principles of Medicinal Chemistry.

#### Reference books

1. Burger's Medicinal Chemistry, Vol I to IV
2. Introduction to principles of drug design-Smith and Williams
3. Martindale's extra pharmacopoeia
4. Remington's Pharmaceutical Sciences, By Mack Publishing Company, Pennsylvania

## LECTURE PLAN - Practical

**SUBJECT** : Medicinal Chemistry III (Practical)  
**NAME OF THE STAFF** : Dr JUBIE S  
**DESIGNATION** : Associate Professor, Department of Pharmaceutical Chemistry  
**CONTACT DETAILS** : E- Mail: [jubie@jssuni.edu.in](mailto:jubie@jssuni.edu.in) Mobile: 9894618588

Sessional	Number of Practical (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practical X 3)
I	09	27
II	11	33
III	07	21
<b>Total Number of Practical/Hours</b>	27	81

### I SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Introduction Class	30.06.2022	01.07.2022
2.	Preparation of 7-hydroxy 4-methyl coumarin	07.07.2022	08.07.2022
3.	Preparation of phenytoin from benzoin	14.07.2022	15.07.2022
4.	Preparation of phenothiazine from diphenyl amine	21.07.2022	22.07.2022
5.	Preparation of 2,4,5-triphenyl imidazole from benzil	28.07.2022	29.07.2022
6.	Preparation of hexamine from formaldehyde	04.08.2022	05.08.2022
7.	Preparation of 2,3 diphenyl quinoxaline from o-phenylene diamine	11.08.2022	12.08.2022
8.	Preparation of benzotriazole from o-phenylene diamine	18.08.2022	26.08.2022
9.	Repeatation of missed practicals if any	25.08.2022	-
<b>FIRST SESSIONAL EXAMINATION</b>		<b>01.09.2022</b>	<b>02.09.2022</b>

### II SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Preparation of benzimidazoles from o-phenylene diamine	15.09.2022	16.09.2022
2.	Preparation of p-acetamido benzene sulphonyl chloride from acetanilide	22.09.2022	23.09.2022

3.	Assay of Isoniazid by bromometry	29.09.2022	30.09.2022
4.	Assay of dapsona by diazotization	06.10.2022	07.10.2022
5.	Assay of hexamine	13.10.2022	14.10.2022
6.	Assay of ascorbic acid by iodimetry	20.10.2022	21.10.2022
7.	Assay of Ibuprofen tablets by alkalimetry	27.10.2022	28.10.2022
8.	Assay of Phenyl butazone tablets by alkalimetry	03.11.2022	04.11.2022
9.	Determination of partition coefficient-drug1	10.11.2022	11.11.2022
10.	Repeatation of missed practicals if any	17.11.2022	-
11.	Repeatation of missed practicals if any	24.11.2022	25.11.2022
<b>SECOND SESSIONAL EXAMINATION</b>		<b>01.12.2022</b>	<b>02.12.2022</b>

### III SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Determination of partition coefficient-drug 2	15.12.2022	16.12.2022
2.	Dissociation constant of drug substance	22.12.2022	23.12.2022
3.	Monograph analysis of aspirin	19.01.2023	20.01.2023
4.	Monograph analysis of caffeine	02.02.2023	27.01.2023
5.	Monograph analysis of sulfanilamide	09.02.2023	03.02.2023
6.	Monograph analysis of paracetamol	16.02.2023	10.02.2023
7.	Repeatation of missed practicals if any	23.02.2023	17.02.2023
<b>THIRD SESSIONAL EXAMINATION</b>		<b>03.03.2022</b>	<b>04.03.2022</b>
<b>Bonification of the Practical Record Note Book</b>		<b>09.03.2023</b>	<b>10.03.2023</b>

## LECTURE PLAN – Theory

**SUBJECT:** PHARMACEUTICAL FORMULATION

**FACULTY:** Dr. D. NAGASAMY VENKATESH

**DESIGNATION:** Associate Professor, Department of Pharmaceutics

**CONTACT DETAILS: E-Mail:** [nagasamyvenkatesh@jssuni.edu.in](mailto:nagasamyvenkatesh@jssuni.edu.in) **Mobile:** 8903123467

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	19	04	23	05
II	18	05	23	07
III	17	05	22	05
<b>Total Number of Hours</b>	54	14	68	17

### I SESSIONAL: 19 Lectures + 04 Activities

Lecture No.	Date	Lecture Details
		<b>Unit-1: Introduction to Pharmaceutical Dosage form 03 Hours</b>
1.	27.06.2022	Orientation to the subject
2.	29.06.2022	Introduction Pharmaceutics
Tutorial-1	30.06.2022	--
3.	04.07.2022	Orientation on Formulations with respect to pharmacological aspect
		<b>Unit-2: Absorption of Drug 08 Hours</b>
4.	06.07.2022	Introduction-Solids-tablets
Tutorial-2	07.07.2022	--
5.	11.07.2022	Tablets advantages and disadvantages, Excipients & Granulation techniques
6.	13.07.2022	Tablets compression
Activity-1	14.07.2022	Class Test
7.	18.07.2022	Manufacturing defects of tablets

8.	20.07.2022	Evaluation of Tablets
Tutorial-3	21.07.2022	--
9.	25.07.2022	Types of tablets
10.	27.07.2022	Tablet coating-Advantages, Disadvantages and Equipment, Types of Coating-Sugar Coating-Process
Activity-2	28.07.2022	Group Discussion / Quiz
11.	01.08.2022	Film Coating-Materials and process, coating problems, remedy and evaluation
<b>Unit-3: Capsules 08 Hours</b>		
12.	03.08.2022	Capsules-Introduction, Types , Advantages and Disadvantages and raw materials
13.	08.08.2022	Production of gelatin and other polymer based capsules
14.	10.08.2022	Production of hard gelatin capsules
15.	17.08.2022	Filling of hard gelatin capsules
16.	22.08.2022	Soft Gelatin Capsules-Production and filling
17.	24.08.2022	Soft Gelatin Capsules-Production and filling (Contd..)
18.	29.08.2022	Essential Properties of gelatin
19.	31.08.2022	Advantages and Disadvantages soft gelatin capsules
Tutorial-4	04.08.2022	-
Tutorial-5	11.08.2022	-
Activity-3	18.08.2022	Group Discussion / Quiz
Activity-4	25.08.2022	Class Test

## II SESSIONAL : 18 Lectures + 05 Activities

<b>Unit-4: Liquid orals 16 hours</b>		
1.	14.09.2022	Introduction-Monophasic Liquid dosage forms
Tutorial-1	15.09.2022	-
2.	19.09.2022	Advantages and disadvantages

3.	21.09.2022	Solution-solubility and enhancement techniques
Tutorial-2	22.09.2022	-
4.	26.09.2022	Solubility enhancement techniques
5.	28.09.2022	Syrups-Formulation and evaluation
Tutorial-3	29.09.2022	-
6.	03.10.2022	Elixirs-Formulation and Evaluation
Activity-1	06.09.2022	Quiz / Group Discussion
7.	10.10.2022	Biphasic liquid dosage forms-Introduction
8.	12.10.2022	advantages and disadvantages biphasic
Tutorial-4	13.10.2022	-
9.	17.10.2022	Suspension-approaches for formulation
10.	19.10.2022	Suspension-approaches for formulation (cont.)
Tutorial-5	20.10.2022	-
11.	26.10.2022	Suspension-Evaluation and packaging
Activity-2	27.10.2022	Class Test
12.	31.10.2022	Emulsion-Introduction
13.	02.11.2022	Formulation-Mechanism
Tutorial-6	03.11.2023	-
14.	07.11.2022	Emulsifying agents-Classification
15.	09.11.2022	Emulsion Types-Formulation
Activity-3	10.11.2022	Group Discussion / Quiz
16.	14.11.2022	Emulsion-Evaluation and Instability problems
<b>Unit-5: Parenterals</b>		
<b>02 Hours</b>		
17.	16.11.2022	Introduction and the classification Parenterals-
Tutorial-7	17.11.2022	-
18.	21.11.2022	Advantages And Disadvantages
Activity-4	23.11.2022	MCQ Test
Activity-5	28.11.2022	Descriptive Test

### III SESSIONAL : 17 Lectures + 05 Activities

<b>Unit-5: Parenterals(cont..)</b>		
<b>03 Hours</b>		
1.	14.12.2022	Parenteral-Additives, Filling, Sealing

Tutorial-1	15.12.2022	-
2.	19.12.2022	Aseptic techniques
3.	21.12.2022	Evaluation of parenteral
<b>Unit-6: Semi Solids - (Factors effecting absorption, packing, storage and labeling)</b> <b>04 Hours</b>		
9.	23.01.2023	Skin Structure, Barriers-Drug penetration and permeation
10.	25.01.2023	OINTMENTS-types of ointment bases
Tutorial-2	26.01.2023	-
12.	30.01.2023	Preparation of the ointment
13.	01.02.2023	GEL - type and the formulation of the gel
Tutorial-3	02.02.2023	-
<b>Unit-7: Definition and the concept of controlled and novel drug Delivery System</b> <b>05 Hours</b>		
14.	06.02.2023	Definition and the concept of controlled and novel drug delivery systems, Mucosal Drug delivery system
15.	08.02.2023	Transdermal drug delivery stems,
Tutorial-4	09.02.2023	-
16.	13.02.2023	Vaginal drug delivery system
17.	15.02.2023	Nasal and implantable drug delivery systems, Ocular drug delivery system
Tutorial-5	16.02.2023	Targeted drug delivery system-nanoparticles, monoclonal antibodies etc
Activity –1	20.02.2023	Unit Test – 1
Activity –2	22.02.2023	Unit Test – 2
Activity –3	23.02.2023	Unit Test – 3
Activity –4	27.02.2023	Unit Test – 4
Activity – 5	01.03.2023	Unit Test – 5

**Text Books**

1. Textbook of Pharmaceutics 8/Ed by, Bentley'S
2. Novel drug delivery systems by, Y.W.Chein

**Reference Books**

1. Pharmaceutical dosage form-Volume I II and III by, Herbert Lieberman, Leon Lachman, Joseph B.Schwartz
2. Textbook of pharmaceutics by, Rowlings
3. Tutorial Pharmacy by Carter (6th Edition) by, Cooper and Gunn
4. Pharmaceutical science by, Remingtons
5. USP/BP/IP

## LECTURE PLAN - Practical

**SUBJECT** : PHARMACEUTICAL FORMULATIONS (Practical)  
**NAME OF THE STAFF** : Dr. D. NAGASAMY VENKATESH  
**DESIGNATION** : Associate Professor, Department of Pharmaceutics  
**CONTACT DETAILS** : E- Mail: [nagasamyvenkatesh@jssuni.edu.in](mailto:nagasamyvenkatesh@jssuni.edu.in) Mobile: 8903123467

Sessional	Number of Practical (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practical X 3)
I	08	24
II	11	33
III	07	21
<b>Total Number of Practical/Hours</b>	26	81

### I SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Paracetamol Tablets	27.06.2022	28.06.2022
2.	Evaluation of Paracetamol Tablets	04.07.2022	05.07.2022
3.	Chewable Antacids Tablet (Wet Granulation)	11.07.2022	12.07.2022
4.	Capsule Fill Weight Calculation	18.07.2022	19.07.2022
5.	Aqueous Iodine Solution	25.07.2022	26.07.2022
6.	Simple Syrup	01.08.2022	02.08.2022
7.	Ferrous Sulphate Syrup	08.08.2022	16.08.2022
Repeat	Repetition of missed practical's if any	-	-
<b>I SESSIONAL EXAMINATION</b>		29.08.2022	30.08.2022

### II SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Liquid Paraffin Emulsion	12.09.2022	13.09.2022
2.	Castor Oil Emulsion	19.09.2022	20.09.2022
3.	Paracetamol Suspension	26.09.2022	27.09.2022
4.	Isotonicity Calculation	03.10.2022	11.10.2022
5.	Filling and Sealing of Ampoule (Normal Saline)	10.10.2022	18.10.2022
6.	Filling and Sealing of Ampoules (Dns)	17.10.2022	01.11.2022

7.	Simple Ointment Base	31.10.2022	08.11.2022
8.	Sulphur Ointment	07.11.2022	15.11.2022
9.	Benzoic Acid and Salicylic Acid Ointment	14.11.2022	22.11.2022
10.	Zinc Oxide Ointment	21.11.2022	22.11.2022
	Repetition of missed practical's if any	-	-
<b>SECOND SESSIONAL EXAMINATION</b>		<b>28.11.2022</b>	<b>29.11.2022</b>

### III SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Clear Gel	12.12.2022	13.12.2022
2.	HPMC Based Gel	19.12.2022	20.12.2022
3.	Cosmetics: Cold Cream	23.01.2023	24.01.2023
4.	Vanishing Cream	30.01.2023	31.01.2023
5.	Shampoo	06.02.2023	07.02.2023
6.	Tooth Paste	13.02.2023	14.02.2023
7.	Tooth Powder	20.02.2023	21.02.2023
8.	Face Powder	20.02.2023	21.02.2023
9.	Lather Shaving Cream	27.02.2023	28.02.2023
<b>THIRD SESSIONAL EXAMINATION</b>		<b>06.03.2023</b>	<b>07.03.2023</b>
<b>Bonification of the Practical Record Note Book</b>			