

JSS Academy of Higher Education & Research, Mysore

(Deemed to be University - Accredited 'A' Grade by NAAC)



JSS College of Pharmacy, Rocklands, Ooty

(An ISO 9001:2015 Certified Institution)



Academic Plan

(Academic Year: 2019-2020)

Course: II. PHARM.D.

Name of the Subject	Pharmacology II (Theory)
Name of the Faculty	Mr. Saravanan J
Designation, Department	Lecturer, Department of Pharmacology
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Lecture Plan - Theory

Sessional	Number of Hours of Didactic Lecture	No. of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Hours
I	33	08	41	04
II	27	04	31	04
III	26	05	31	07
Total Number of Lecture Hours	86	17	103	15

I SESSIONAL- 33 Lectures + 08 Activities

Lecture No.	Date	Lecture Topics
Unit I- Pharmacology of drugs acting on Renal system 05 hours		
1.	18/06/2019	Diuretics
2.	19/06/2019	Diuretics
3.	20/06/2019	Diuretics
Tutorial -1	20/06/2019	-
4.	25/06/2019	Antidiuretics
5.	26/06/2019	Antidiuretics
Activity -1	27/06/2019	Class test I
Tutorial -2	27/06/2019	-
Unit II-Drugs acting on Blood and blood forming agents 06 hours		
6.	02/07/2019	Anticoagulants
7.	03/07/2019	Anticoagulants
Activity -2	04/07/2019	Discussion
Tutorial -3	04/07/2019	-
8.	09/07/2019	Haemopoietics
9.	10/07/2019	Antiplatelet agents
10.	11/07/2019	Thrombolytic agents
Tutorial -4	11/07/2019	-

11.	16/07/2019	Plasma volume expanders
Unit III- Pharmacology of drugs acting on Gastrointestinal Tract		08 hours
12.	17/07/2019	Antiulcer drugs
13.	18/07/2019	Antiulcer drugs
Activity - 3	18/07/2019	Group discussion
14.	23/07/2019	Antacids
15.	24/07/2019	Laxatives and purgatives
16.	25/07/2019	Laxatives and purgatives
Activity - 4	25/07/2019	Quiz
17.	30/07/2019	Emetics and antiemetics
18.	31/07/2019	Emetics and antiemetics
19.	01/08/2019	Appetizers, digestants and carminatives
Activity - 5	01/08/2019	Class test II
Unit IV - Chemotherapy		14 hours
20.	06/08/2019	Introduction to Chemotherapeutic agents
21.	07/08/2019	General mechanism of action of chemotherapeutic agents
22.	08/08/2019	General mechanism of action of chemotherapeutic agents
Activity - 6	08/08/2019	Open book test
23.	13/08/2019	Classification of chemotherapeutic agents
24.	14/08/2019	Sulfonamides&Co-trimoxazole
25.	20/08/2019	Sulfonamides&Co-trimoxazole
26.	21/08/2019	Tetracyclines
27.	22/08/2019	Chloramphenicol
Activity - 7	22/08/2019	Class test
28.	27/08/2019	Penicillins
29.	28/08/2019	Aminoglycoside antibiotics
30.	03/09/2019	Macrolides
31.	04/09/2019	Polyene and Polypeptide antibiotics
32.	05/09/2019	Quinolines and Fluroquinolines
Activity - 8	05/09/2019	Class test
33.	11/09/2019	Quinolines and Fluroquinolines

II SESSIONAL-27 Lectures + 04 Activities

Lecture No.	Date	Lecture Details
Unit IV		Chemotherapy 06 hours
1	24/09/2019	Antiviral agents
2	26/09/2019	Chemotherapy of tuberculosis (Drug regimens)
3	26/09/2019	Chemotherapy of leprosy
4	01/10/2019	Chemotherapy of cancer
5	03/10/2019	Chemotherapy of cancer

Tutorial-1	03/10/2019	-
6	09/10/2019	Chemotherapy of cancer
Unit V Immunopharmacology 03 hours		
7	10/10/2019	Introduction of immunology
Activity-1	10/10/2019	Class test I
8	15/10/2019	Pharmacology of Immunosuppressants
9	16/10/2019	Pharmacology of Immunostimulants
Unit VI Principles of Animal toxicology 02 hours		
10	17/10/2019	Acute, subacute and chronic toxicity
11	17/10/2019	Principle involved in the various toxicity screening methods available for drugs in the laboratory animals.
Unit VII The dynamic cell: Structure & functions of the components of the cell 16hours		
12	22/10/2019	Cell and macromolecules: Cellular classification, subcellular organelles.
13	23/10/2019	Macromolecules and large macromolecular assemblies
14	24/10/2019	Chromosome structure : Pro and eukaryotic chromosome structures
Tutorial-2	24/10/2019	-
15	29/10/2019	Chromatin structure, genome complexity, flow of genetic information
16	30/10/2019	DNA replication : bacterial DNA replication
17	31/10/2019	DNA replication : eukaryotic DNA replication
Activity-2	31/10/2019	Quiz
18	05/11/2019	The cell cycle: restriction point
19	06/11/2019	Cell cycle regulators and modifiers
20	07/11/2019	Cell signaling – communication between cell and their environment
Tutorial-3	07/11/2019	-
21	12/11/2019	Ion channels
22	13/11/2019	Signal transduction pathway - MAP Kinase
23	14/11/2019	Signal transduction pathway - MAP Kinase
Activity-3	14/11/2019	Class test
24	19/11/2019	Signal transduction pathway - P38 kinase
25	20/11/2019	Ras Ramp pathway
26	21/11/2019	PI3 kinase/Akt and cell survival
Tutorial-4	21/11/2019	-
27	26/11/2019	JNK pathway
Activity-4	27/11/2019	Class test II

III SESSIONAL- 26 Lectures + 05 Activities

Lecture No.	Date	Lecture Details
Unit VIII The Gene: Genome structure and function 20 hours		

1.	05/12/2019	Gene structure: Organization and elucidation of genetic code
Tutorial-1	05/12/2019	-
2.	17/12/2019	Introduction of gene expression and Expression systems (pro and eukaryotic)
3.	18/12/2019	Genetic elements that control gene expression (nucleosomes, histones, acetylation, HDACS, DNA binding protein families)
4.	19/12/2019	Basic principles of transcription in pro and eukaryotes.
5.	19/12/2019	Transcription factors that regulate transcription in prokaryotes
6.	21/01/2020	Transcription factors that regulate transcription in pro and eukaryotes
7.	22/01/2020	Transcription factors that regulate transcription in eukaryotes
8.	23/01/2020	RNA processing: rRNA, tRNA and mRNA processing
Activity-1	23/01/2020	Seminar
9.	28/01/2020	Mechanisms of protein synthesis
10.	29/01/2020	Initiation in eukaryotes, translation control and post-translation events in protein synthesis
11.	30/01/2020	Initiation in eukaryotes, translation control and post-translation events in protein synthesis
Tutorial-2	30/01/2020	
12.	04/02/2020	Mutations, deletions, Amplifications and LOH, Translocations, Trinucleotide repeats and other genetic abnormalities.
13.	05/02/2020	Oncogenes and tumor suppressor genes
14.	06/02/2020	The gene sequencing, mapping and cloning of human disease genes
Tutorial-3	06/02/2020	
15.	11/02/2020	The gene sequencing, mapping and cloning of human disease genes
16.	12/02/2020	Introduction to gene therapy
17.	13/02/2020	Gene Therapy: Gene targets
Activity-2	13/02/2020	Class test
18.	18/02/2020	Recombinant DNA technology: Principles and applications
19.	19/02/2020	Processes of Recombinant DNA technology: Processes
20.	20/02/2020	Processes of Recombinant DNA technology: Processes
Tutorial-4	20/02/2020	-
Unit IX Bio-assay methods		06 hours
21.	25/02/2020	Introduction and scope of bioassay
22.	26/02/2020	Principles of bioassay
23.	27/02/2020	Types of bioassay
Tutorial-5	27/02/2020	
24.	03/03/2020	Bioassay designing
25.	04/03/2020	Applications of bioassay
26.	05/03/2020	Limitations of bioassay
Tutorial- 6	05/03/2020	
Activity-3	10/03/2020	Revision
Activity-4	11/03/2020	Revision

Activity-5	12/03/2020	Revision
Tutorial-7	12/03/2020	-

Reference books:

- a. Goodman Gilman, A., Rall, T.W., Nies, A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological basis of therapeutics. 11th edition, 2006. Publisher: McGraw Hill, Pergamon press.
- b. Craig, C.R. and Stitzel, R.E. Modern Pharmacology. 5th edition 1997. Publisher: Little Brown and company.
- c. Katzung, B.G. Basic and clinical pharmacology. 9th edition 2004. Publisher: Prentice Hall, International.
- d. Gupta, P.K. and Salunkhe, D.K. Modern Toxicology. Volume I, II and III. 1985. Publisher: B.V. Gupta, Metropolitan Book Co. (p) Ltd, New Delhi.
- e. Crommelin, DJA and Sindelar RD. Pharmaceutical Biotechnology. 3rd edition 2008. Publisher: Infarma Healthcare.
- f. Watson, JD., Gilman, M., et al. Recombinant DNA. 2nd edition 1992. Publisher: Scientific America.
- g. Walsh, G. Biopharmaceutical: Biochemistry and Biotechnology. 2nd edition 2007. Publisher: John Wily.
- h. Derelanko MG. Handbook of toxicology. 2nd edition 2002; Publisher: CRC Press.

Name of the Subject	Pharmacology II (Practical)
Name of the Faculty	Mr. Saravanan J
Designation, Department	Lecturer, Department of Pharmacology
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Lecture Plan – Practical

Sessional	Number of Practicals (Mention the Highest Number Amongst Various Batches)	Total Number of Practical Hours (Number of Practicals X 3)
I	11	33
II	10	30
III	10	30
Total Number of Practicals/Hours	31	93

I SESSIONAL

Practical No.	Name of the Experiment	Date	
		Batch I	Batch II
1.	Introduction to experimental Pharmacology	21/06/2019	20/06/2019
2.	Study of laboratory animals and their handling	28/06/2019	27/06/2019
3.	Study of laboratory appliances used in experimental pharmacology	05/07/2019	04/04/2019
4.	Study of use of anesthetics in laboratory animals	12/07/2019	11/07/2019
5.	Study of different routes of administration of drugs in animals	19/07/2019	18/07/2019
6.	Study of analgesic activity of drug using eddy's hot plate	26/07/2019	25/07/2019
7.	Skeletal muscle relaxant activity of drugs using rotarod	02/08/2019	01/08/2019
8.	Locomotor activity of drugs using actophotometer	09/08/2019	08/08/2019
9.	Effect of drug on rabbit eye I	16/08/2019	22/08/2019
10.	Effect of drug on rabbit eye II	30/08/2019	29/08/2019
11.	Effect of drug on ciliary motility	06/09/2019	05/09/2019
	I Sessional practical exam	13/09/2019	12/09/2019

II SESSIONAL

Practical No.	Name of the Experiment	Date	
		Batch I	Batch II
1	Study of physiological salts solutions used in experimental pharmacology	20/09/2019	26/09/2019
2	Effect of drug on frog heart	27/09/2019	03/10/2019
3	To record a DRC of acetylcholine using isolated tissue preparation	04/10/2019	10/10/2019
4	To record a DRC of histamine using isolated guinea pig ileum preparation	11/10/2019	17/10/2019
5	Study of agonistic effect of drug on isolated tissue preparation	18/10/2019	24/10/2019
6	Study of antagonistic effect of drug on isolated tissue preparation	25/10/2019	31/10/2019
7	Bioassay of histamine using isolated guinea pig ileum preparation –Interpolation method	01/11/2019	07/11/2019
8	Bioassay – interpolation method	08/11/2019	14/11/2019
9	Anti-inflammatory activity	15/11/2019	21/11/2019
10	Antidepressant activity	22/11/2019	21/11/2019
	II Sessional practical exam	29/11/2019	28/11/2019

III SESSIONAL

Practical No.	Name of the Experiment	Date	
		Batch I	Batch II
1.	Bioassay of serotonin using isolated guinea pig ileum preparation – Three point method	06/12/2019	05/12/2019
2.	Bioassay of acetylcholine using isolated guinea pig ileum preparation – Three point method	13/12/2019	19/12/2019
3.	Anticonvulsant activity of drug using MES method	20/12/2019	23/01/2020
4.	Drug effect on the blood pressure, heart rate of dog	17/01/2020	30/01/2020
5.	Repeat	24/01/2020	06/02/2020
6.	Repeat	31/01/2020	13/02/2020
7.	Repeat	14/02/2020	20/02/2020
8.	Comprehensive viva	28/02/2020	27/02/2020
9.	Comprehensive viva	06/03/2020	05/03/2020

10.	Record work	13/03/2020	12/03/2020
	III Sessional exam	20/03/2020	19/03/2020

Reference books:

- a. Goodman Gilman, A., Rall, T.W., Nies, A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological basis of therapeutics. 11th edition, 2006. Publisher: McGraw Hill, Pergamon press.
- b. Craig, C.R. and Stitzel, R.E. Modern Pharmacology. 5th edition 1997. Publisher: Little Brown and company.
- c. Katzung, B.G. Basic and clinical pharmacology. 9th edition 2004. Publisher: Prentice Hall, International.
- d. Gupta, P.K. and Salunkhe, D.K. Modern Toxicology. Volume I, II and III. 1985. Publisher: B.V. Gupta, Metropolitan Book Co. (p) Ltd, New Delhi.
- e. Crommelin, DJA and Sindelar RD. Pharmaceutical Biotechnology. 3rd edition 2008. Publisher: Infarma Healthcare.
- f. Watson, JD., Gilman, M., et al. Recombinant DNA. 2nd edition 1992. Publisher: Scientific America.
- g. Walsh, G. Biopharmaceutical: Biochemistry and Biotechnology. 2nd edition 2007. Publisher: John Wiley.
- h. Derelanko MG. Handbook of toxicology. 2nd edition 2002; Publisher: CRC Press.

Name of the Subject	PHARMACEUTICAL ANALYSIS
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LECTURE PLAN – Theory

	Number of Hours of Didactic Lecture	No. of Hrs of	Total No. of	Tutorial Classes
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Sessional		other Pedagogy	Lecture Hrs	
I	30	05	35	10
II	25	02	27	08
III	25	03	28	09
Total No. of Hrs	80	10	90	27
TUTORIAL HOUR: EVERY MONDAY.				

I SESSIONAL**30 Lectures + 05 Activities**

01	18.06.19	INTRODUCTION
XIV. Chromatography		02 Hours
02	19.06.19	Introduction, history, classification.
03	20.06.19	Introduction, history, classification.
XV. Column Chromatography		03 Hours
04	25.06.19	Adsorption column chromatography, Operational technique, frontal analysis and elution analysis.
05	26.06.19	Factors affecting column efficiency
06	27.06.19	Applications and partition chromatography.

XVI.Thin Layer Chromatography		02 Hours
07	02.07.19	Introduction, principle
08	03.07.19	Techniques, Rf value and applications
ACTIVITY	04.07.19	Activity - 1
XVII.Paper Chromatography		02 Hours
09	09.07.19	Introduction, principle, types of paper chromatography
10	10.07.19	Preparation and development techniques, applications.
ACTIVITY	11.07.19	Activity -2
XVIII. Ion-exchange chromatography		03 Hours
11	16.07.19	Introduction, principles, types of ion exchange resins
12	17.07.19	Physical properties, factors affecting ion exchange
13	18.07.19	Methodology and applications.
XIX. High Performance Liquid chromatography		03 Hours
14	23.07.19	Introduction and principle
15	24.07.19	Theory, instrumentation
16	25.07.19	Applications

XX.High Performance Thin Liquid chromatography			02 Hours
17	30.07.19	Introduction ,principle and theory	
18	31.07.19	Instrumentation and Applications	
ACTIVITY	01.08.19	Activity -3	
XXI. Gas Chromatography			04 Hours
19	06.08.19	Introduction, theory, instrumentation-carrier gases, types of columns, stationary phases in GLC & GSC	
20	07.08.19	Detectors-Flame ionization detectors, electron capture detector, thermal conductivity detector	
21	08.08.19	Typical gas chromatogram, derivatisation techniques, programmed temperature gas chromatography	
22	13.08.19	Applications.	
ACTIVITY	14.08.19	Activity -4	
XXII. Electrophoresis			02 Hours
23	20.08.19	Introduction and Principles of separation	
24	21.08.19	Equipment for paper & gel electrophoresis, and application.	
XXIII. Gel filtration and affinity chromatography			03 Hours
25	22.08.19	Introduction and principle	
26	27.08.19	Instrumentation and technique	

27	28.08.19	Applications.
ACTIVITY	29.08.19	Activity -5
I. Spectroscopy (UV/Vis Absorption Spectroscopy)		09 Hours
28	03.09.19	Theory of atomic and molecular spectra,
29	04.09.19	Fundamental laws of photometry Beer-Lambert's Law, application and its deviation
30	05.09.19	Limitation of Beer law, application of the law to single and multiple component analysis
I SESSIONAL EXAM STARTS FROM 11.09.2019 TILL 19.09.2019		

TUTORIAL HOUR: EVERY MONDAY BETWEEN 9.00 AM TO 10.00 AM					
I SESSIONAL	24.06.19,	01.07.19,	08.07.19,	15.07.19,	22.07.19,
	29.07.19,	05.08.19,	19.08.19,	26.08.19,	09.09.19.

II SESSIONAL**25 Lectures + 02 Activities**

Lecture No.	Date	Contents of the Lecture
I. Spectroscopy (UV/Vis Absorption Spectroscopy)		09 Hours

1	24.09.19	Measurement of equilibrium constant and rate constant by spectroscopy
2	25.09.19	Spectra of isolated chromophores, auxochromes
3	26.09.19	Batho-chromic shift, hypsochromic shift, hyperchromic and hypochromic effect
4	03.10.19	Effect of solvent on absorption spectra
5	04.10.19	Molecular structure and infrared spectra.
Instrumentation		05 Hours
6	09.10.19	Photometer, U.V.-Visible spectrophotometer
8	10.10.19	Sources, collimating systems, monochromators, samples cells
9	15.10.19	Detectors-Photocell, Barrier layer cell
10	16.10.19	Phototube, Diode array
11	17.10.19	Applications of U.V.-Visible spectroscopy in pharmacy and spectrophotometric titrations
ACTIVITY	22.10.19	ACTIVITY -1
II. Infrared Spectroscopy		06 Hours
12	23.10.19	Principle, Vibrational transitions, frequency – structure correlations
13	24.10.19	Infrared absorption bands
14	29.10.19	Instrumentation–IR spectro-meter – sources of IR, Collimating systems, monochromators, sample cells, sample handling in IR spectroscopy

15	30.10.19	Detectors–Thermocouple, Golay Cells, Thermistor
16	31.10.19	Bolometer, Pyroelectric detector
17	05.11.19	Applications of IR in pharmacy
ACTIVITY	06.11.19	ACTIVITY -2
III. Fluorimetric Analysis		04 Hours
18	07.11.19	Principle, Theory, luminescence
19	12.11.19	Factors affecting fluorescence, quenching. Instrumentation
20	13.11.19	Applications, fluorescent indicators
21	14.11.19	Study of pharmaceutically important compounds estimated by fluorimetry.
IV. Flame Photometry		04 Hours
22	19.11.19	Principle, Theory, nebulisation, flame and flame temperature
23	20.11.19	Interferences, flame spectrometric techniques
24	21.11.19	Instrumentation, and detectors
25	26.11.19	Pharmaceutical applications
II SESSIONAL EXAM STARTS FROM 27.11.2019 TILL 04.12.19		

TUTORIAL HOUR: EVERY MONDAY BETWEEN 9AM TO 100 AM

II SESSIONAL	23.09.19,	30.09.19,	14.10.19,	21.10.19,
	04.11.19,	11.11.19,	18.11.19,	25.11.19

III SESSIONAL**25 Lectures + 03 Activities**

V. Atomic Absorption Spectrometry		01 Hours
1	05.12.19	Intro, Theory, Types of electrodes, instrumentation & applications
VI. Atomic Emission Spectroscopy		01 Hours
2	17.12.19	Sources, AE spectrometers, photographic & photoelectric detection.
VII. NMR (introduction only)		02 Hours
3	18.12.19	Introduction and principle
4	19.12.19	Theoretical aspects and applications
VIII. Mass Spectroscopy: (Introduction only)		02 Hours
5	21.01.20	Fragmentation, types of ions produced
6	22.01.20	Mass spectrum and applications
IX. Electrometric Methods		02 Hours
7	23.01.20	Theory, instrumentation, interpretation of data/spectra & analytical applications

ACTIVITY	28.01.20	ACTIVITY-1
X. Potentiometry		05 Hours
8	29.01.20	Electrical potential, electrochemical cell
9	30.01.20	Reference electrodes, indicator electrodes
10	04.02.20	Measurement of potential & pH, construction & working of electrodes
11	05.02.20	Potentiometric titrations, methods of detecting end point
12	06.02.20	Karl Fischer titration
XI. Conductometry		03 Hours
13	11.02.20	Introduction and principle
14	12.02.20	Conductivity cell, Conductometric titrations
15	13.02.20	Application
XII. Amperometric Titrations		04 Hours
16	18.02.20	Introduction and principle
17	19.02.20	Types of electrodes used, reference and indicator electrode
18	20.02.20	Instrumentation, titration procedure, adv. and disadvantages
19	25.02.20	Amperometry over Potentiometry. Pharma applications

XIII. Quality Assurance		03 Hours			
20	26.02.20	Introduction, sources of quality variation,			
ACTIVITY	27.02.20	ACTIVITY- 2			
21	03.03.20	Control of quality variation.			
22	04.03.20	Validation methods- quality of equipment			
ACTIVITY	05.03.20	ACTIVITY-3			
23	10.03.20	Validation of equipment			
24	11.03.20	Validation of analytical instruments and calibration.			
25	12.03.20	DISCUSSION ABOUT EXAM PREPARATION			
III SESSIONAL EXAM STARTS FROM 19.03.20 TILL 25.03.20					
TUTORIAL HOUR: EVERY MONDAY BETWEEN 9AM TO 100 AM					
III SESSIONAL	16.12.19,	20.01.20,	27.01.20,	03.02.20,	
	10.02.20,	17.02.20,	24.02.20,	02.03.20,	09.03.20

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.

William Kemp - Spectroscopy methods.

Name of the Subject	PHARMACEUTICAL ANALYSIS
Name of the Faculty	J S K NAGARAJAN
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Practicals Plan for Three Sessionals:

Sessional	No. of Practical (Mention Highest No. Amongst Various Batches)	Total No. of Practical Hours (No. of Practical X 3)
I	13	39
II	08	24
III	09	27
Total No. of Practical/Hours	30	90

I SESSIONAL

Practical	Name of the Experiment	Date(s)	
		Batch I	Batch II
1.	Introduction	17.06.19	18.06.19
2.	Separation & identification of Amino Acids by Paper Chromatography	24.06.19	25.06.19

3	Separation & identification of Dyes by radial paper chromatography	01.07.19	02.07.19
4	Separation & identification of Sulpha drugs by TLC	08.07.19	09.07.19
5.	Demonstration of HPLC	15.07.19	16.07.19
6.	Serial Dilution	22.07.19	23.07.19
7.	Serial Dilution	29.07.19	30.07.19
8.	Determination of lambda max Salicylic acid and potassium permanganate	05.08.19	06.08.19
9.	UV spectroscopic estimation of Paracetamol tablets	19.08.19	13.08.19
10.	Assay of Dextrose by colorimetry	26.08.19	20.08.19
11.	Simultaneous estimation of two drugs present in given formulation	09.09.19	27.08.19
12	REPITITION		03.09.19
13.	I SESSIONAL PRACTICAL EXAM	16.09.19	17.09.19

II SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch II	Batch I
1.	Effect of pH and solvent on the UV spectrum of given compound	23.09.19	24.09.19

2.	Determination of dissociation constant of indicators using UV-Visible spectroscopy	30.09.19	01.10.19
3.	Colorimetric estimation of Ferrous ions using 1,10-Phenanthroline	14.10.19	15.10.19
4.	Colorimetric estimation of Supha drugs using BMR reagent	21.10.19	22.10.19
5.	Estimation of drugs by Fluorimetric technique	04.11.19	05.11.19
6.	Study of quenching effect in fluorimetry	11.11.19	12.11.19
7.	Determination of Na by Flame Photometry	18.11.19	19.11.19
8.	Determination of K by Flame Photometry	25.11.19	26.11.19
9.	II SESSIONAL PRACTICAL EXAM	02.12.19	03.12.19

III SESSIONAL

Practical No.	Name of the Experiment	Date(s)	
		Batch II	Batch I
1.	Determination of Chlorides and Sulphates in Calcium gluconate by Nepheloturbidimetric Method	16.12.19	17.12.19
2.	Preparation of Kbr Pellets	20.01.20	21.01.20
3.	Infrared spectral graphs/ peak identification of samples with different functional groups (-COOH, -COOR, -NH ₂ , -NHR, -OH, -CHO, -C=O)	27.01.20	28.01.20
4.	Infrared spectral graphs/ peak identification of samples with different functional groups (-COOH, -COOR, -NH ₂ , -NHR, -OH, -CHO, -C=O)	03.02.20	04.02.20
5.	Determination of pKa using pH meter	10.02.20	11.02.20
6.	Conductometric titration of mixture of acids with a strong base	17.02.20	18.02.20

7.	Potentiometric titration of strong acid with a strong base	24.02.20	25.02.20
8.	REPITITION	02.03.20	03.03.20
9.	RECORD WORK / REPITITION	09.03.20	10.03.20
10.	III SESSIONAL PRACTICAL EXAM	16.03.20	17.03.20

Name of the Subject	Pharmacotherapeutics II (Theory)
Name of the Faculty	Dr. G.K.Sadagoban
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LECTURE PLAN - Theory

Sessional	Number of Hours of Didactic Lecture	No of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	25	05	30	09
II	25	03	28	14
III	22	02	24	08
Total Number of Hours	72	10	82	31

I SESSIONAL :25 Lectures + 05Activities

Lecture No.	Date	Lecture Details
Unit -1 INFECTIOUS DISEASES		25 Hours
Activity-1	18/06/19	Orientation class- Theory & Practical

		(Simulation ,Record writing, Class room activities)
Activity-2	19/06/19	Orientation class- E Learn Portal (Case Discussion, Assignments, Documentation)
1	19/06/19	Guidelines forthe rational use of antibiotics and surgical Prophylaxis.
Tutorial-1	22/06/19	-
2	25/06/19	Guidelines forthe rational use of antibiotics and surgical Prophylaxis.
3	26/06/19	Meningitis
4	26/06/19	Meningitis
Tutorial-2	29/06/19	-
5	02/07/19	Tuberculosis
6	03/07/19	Tuberculosis
7	03/07/19	Respiratory tract infection
Tutorial-3	06/07/19	-
8	09/07/19	Respiratory tract infection
9	10/07/19	Respiratory tract infection
10	10/07/19	Gastroenteritis
Tutorial-4	13/07/19	-
11	16/07/19	Gastroenteritis
12	17/07/19	Endocarditis
13	17/07/19	Endocarditis
Tutorial-5	20/07/19	-
Activity-3	23/07/19	Group discussion on Rational use of antibiotics
14	24/07/19	Septicemia
15	24/07/19	Septicemia
Tutorial-6	27/07/19	-
16	30/07/19	Urinarytract infections
17	31/07/19	Urinarytract infections
18	31/07/19	Protozoal infection- Malaria
Tutorial-7	03/08/19	-
19	06/08/19	HIV & Opportunisticinfections
20	07/08/19	HIV & Opportunisticinfections
21	07/08/19	HIV & Opportunisticinfections
Tutorial -8	10/08/19	-

Activity-4	13/08/19	Class test on HIV & Tuberculosis
22	14/08/19	Fungal infections
23	14/08/19	Fungal infections
Tutorial-9	17/08/19	-
24	20/08/19	Syphilis & Gonorrhoea
25	21/08/19	Syphilis & Gonorrhoea
Activity-5	21/08/19	Revision

II SESSIONAL : 25 Lectures + 03 Activities

Unit – 2 MUSCULOSKELETAL DISORDERS 12 Hours		
Tutorial-1	24/08/19	-
1	27/08/19	Rheumatoid arthritis.
2	28/08/19	Rheumatoid arthritis.
3	28/08/19	Osteoarthritis.
Tutorial-2	31/08/19	-
4	03/09/19	Osteoarthritis.
5	04/09/19	Gout.
6	04/09/19	Gout.
Tutorial-3	07/09/19	-
Tutorial-4	21/09/19	-
7	24/09/19	Spondylitis.
Tutorial-5	28/09/19	-
8	01/10/19	Spondylitis.
Tutorial-6	05/10/19	-
Tutorial-7	12/10/19	-
9	15/10/19	Systemic lupus erythematosus.
10	16/10/19	Systemic lupus erythematosus.
11	16/10/19	Systemic lupus erythematosus.
Tutorial-8	19/10/19	-
12	22/10/19	Systemic lupus erythematosus.
Activity-1	23/10/19	Group Discussion on Management of Musculoskeletal disorder

Unit -3 RENAL FAILURE 13 Hours		
1	23/10/19	Acute Renal Failure.
2	29/10/19	Acute Renal Failure.
3	30/10/19	Acute Renal Failure.
4	30/10/19	Chronic Renal Failure.
Tutorial-9	2/11/19	-
5	5/11/19	Chronic Renal Failure.
6	6/11/19	Chronic Renal Failure.
7	6/11/19	Chronic Renal Failure.
Tutorial-10	9/11/19	-
Activity-2	12/11/19	Class test on Chronic Renal Failure. –Viva Voce
8	13/11/19	Renal Dialysis.
9	13/11/19	Renal Dialysis.
Tutorial-11	16/11/19	-
10	19/11/19	Renal Dialysis.
11	20/11/19	Drug induced renal disorders.
12	20/11/19	Drug induced renal disorders.
Tutorial-12	23/11/19	-
13	26/11/19	Drug induced renal disorders.
Tutorial-13	07/12/19	-
Tutorial-14	14/12/19	-
Activity-3	17/12/19	Course Work- Renal Failure

III SESSIONAL : 22 Lectures + 02 Activities

Unit- 4 CANCER 14 HOURS		
1	18/12/19	Basic principles of Cancer therapy.
2	18/12/19	Basic principles of Cancer therapy.
Tutorial-1	21/12/19	-
Tutorial-2	18/01/20	-
3	21/01/20	Basic principles of Cancer therapy.
4	22/01/20	General introduction to cancer chemotherapeutic agents

5	22/01/20	General introduction to cancer chemotherapeutic agents
Tutorial-3	25/01/20	-
6	28/01/20	General introduction to cancer chemotherapeutic agents
7	29/01/20	Chemotherapy of breast cancer
8	29/01/20	Chemotherapy of breast cancer
Tutorial-4	01/02/20	-
9	04/02/20	Chemotherapy of leukemia.
10	05/02/20	Chemotherapy of leukemia.
11	05/02/20	Chemotherapy of leukemia.
12	11/02/20	Chemotherapy of leukemia.
13	12/02/20	Management of chemotherapy induced nausea and emesis
14	12/02/20	Management of chemotherapy induced nausea and emesis
Unit -5 DERMATOLOGY 08 HOURS		
Tutorial-5	15/02/20	-
Activity-1	18/02/20	Cancer Case discussion & Assignment -1 (Submission and Evaluation)
1	19/02/20	Scabies.
2	19/02/20	Scabies.
Tutorial-6	22/02/20	-
3	25/02/20	Psoriasis.
4	26/02/20	Psoriasis.
5	26/02/20	Eczema
Tutorial-7	29/02/20	-
6	03/03/20	Eczema
7	04/03/20	Impetigo.
8	04/03/20	Impetigo.
Tutorial-8	07/03/20	-
Activity-2	10/03/20	Group Discussion- Breast Cancer & Leukemia

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

Name of the Subject	PHARMACEUTICAL JURISPRUDENCE (Theory)
Name of the Faculty	Dr.R.SANTHOSH KUMAR
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LECTURE PLAN - Theory

Sessional	NumberofHoursofDidacticLecture	No.of Hoursof other Pedagogy	Total Number of Lecture Hours
I	25	3	28
II	14	3	17

III	16	1	17
Total NO. of Hours	55	09	62

I SESSIONAL : 25 Lectures + 3 Activities

Lecture No.	Date	Lecture Details
PHARMACEUTICAL JURISPRUDENCE		25 Hours
Unit-1: Pharmaceutical Legislations		02 Hours
1	19-06-2019	Introduction, Study of drugs enquiry committee,
2	21-06-2019	Health survey and development committee, Hathi committee and Mudaliar committee
Tutorial-1	22-06-2019	
Unit-2: Code of Pharmaceutical ethics		02 Hours
1.	26-06-2019	Definition, Pharmacist in relation to his job,
2.	28-06-2019	trade, medical profession and his profession, Pharmacist's oath
Tutorial-2	29-06-2019	
Unit-3: Drugs and Cosmetics Act, 1940 and its rules 1945		21 Hours
1	03-07-2019	Objectives, Definitions, Legal definitions of schedules to the act and rules
2	05-07-2019	Study of Schedule's with reference to Schedule B, C&C1, D, E1, F&F1, F2, F3, FF, G, H, J, K, M, N, P, R, V, W, X, Y.

Tutorial-3	06-07-2019	
3	10-07-2019	Import of drugs – Classes of drugs and cosmetics prohibited from import,
4	12-07-2019	Import under license or permit. Offences and penalties.
Tutorial-4	13-07-2019	
5	17-07-2019	Manufacture of drugs – Prohibition of manufacture and sale of certain drugs,
6	19-07-2019	Conditions for grant of license and conditions of license for manufacture of drugs,
Tutorial-5	20-07-2019	
7	24-07-2019	Manufacture of drugs for test, examination and analysis,
8	26-07-2019	manufacture of new drug, loan license and repacking license.
Tutorial-6		
9	31-07-2019	Detailed study of schedule M, N and Y. Offences and penalties
10	02-08-2019	Sale of Drugs – Wholesale, Retail sale and Restricted license.
Tutorial-7		
11	07-08-2019	Offences and penalties
12	09-08-2019	Labeling & Packing of drugs- General labeling requirements
Tutorial-8		
13	14-08-2019	Specimen,labels for drugs and cosmetics,List of permitted colors
14	16-08-2019	Offences and penalties
Tutorial-9		
15	21-08-2019	Administration of the act and rules – Drugs Technical Advisory Board,

16	23-08-2019	Central drugs Laboratory,
Tutorial-10		
17	28-08-2019	Drugs Consultative Committee,
18	30-08-2019	Government analysts,
Tutorial-11		
19	04-09-2019	Licensing authorities,
20	06-09-2019	controlling authorities
Tutorial-12		
21	11-09-2019	Drug Inspectors
Activity-1		Revision of I Sessional Topics
Activity-2		Revision of I Sessional Topics
Activity-3		Revision of I Sessional Topics

II SESSIONAL :14 Lectures + 3 Activities

PHARMACEUTICAL JURISPRUDENCE 14 Hours		
Unit-4: Pharmacy Act –1948		05 Hours
1.	04-10-2019	PHARMACY ACT –1948: (Introduction) Objectives, Definitions
Tutorial-1	05-10-2019	

2.	09-10-2019	Pharmacy Council of India; its constitution and functions, Education Regulations,
3.	11-10-2019	State and Joint state pharmacy councils;its constitution and functions,
4.	12-10-2019	
5.	16-10-2019	Registration of Pharmacists,
6.	18-10-2019	Offences and Penalties.
Tutorial-2	19-10-2019	
Unit-5: Medicinal and Toilet Preparation Act –1955.		04 Hours
7.	23-10-2019	Objectives, Definitions, Licensing,
8.	25-10-2019	Manufacture In bond and Outside bond,Export of alcoholic preparations,
Tutorial-3	26-10-2019	
9.	30-10-2019	Manufacture of Ayurvedic, Homeopathic,Patent&Proprietary Preparations.
10.	01-11-2019	Offences and Penalties
Tutorial-4	02-11-2019	
Unit-6: NarcoticDrugs and Psychotropic substances Act-1985 and Rules		05 Hours
11	06-11-2019	Objectives, Definitions, Authorities and Officers,
12	08-11-2019	Constitution and Functions of narcotic & Psychotropic Consultative Committee,
Tutorial-5	09-11-2019	
13	13-11-2019	National Fund for Controlling the Drug Abuse,Prohibition, Control and Regulation,
14	15-11-2019	opium poppy cultivation and production of poppy straw,
Tutorial-6	16-11-2019	

15	22-11-2019	manufacture, sale and export of opium, Offences and Penalties
Activity-1	23-11-2019	Revision of II Sessional Topics
Activity-2	27-11-2019	Revision of II Sessional Topics
Activity-3	30-11-2019	Revision of II Sessional Topics

III SESSIONAL :16 Lectures + 01 Activities

PHARMACEUTICAL JURISPRUDENCE 16 Hours		
Unit-7: Study of Salient Features of Drugs and magic remedies Act and its rules 02 Hour		
1.	18-12-2019	Objectives, Definitions, Prohibition of certain advertisements,
2.	20-12-2019	Classes of Exempted advertisements, Offences and Penalties
Tutorial-1	21-12-2019	
Drug Price control Order & National Drug Policy (Current). 03 Hours		
3.	03-01-2020	Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations,
Tutorial-2	04-01-2020	
4	10-01-2020	Objectives, Definitions, Institutional Animal Ethics Committee, Breeding and Stocking of Animals,
Tutorial-3	11-01-2020	
5	17-01-2020	Performance of Experiments, Transfer and acquisition of animals for experiment,
Tutorial-4	18-01-2020	

6	22-01-2020	Records, Power to suspend or revoke registration, Offences and Penalties
Patents & design Act-1970.		10 Hours
7	24-01-2020	Objectives, definitions, Types of patent , PCT,
Tutorial-5	25-01-2020	
8	29-01-2020	Patentable and not patentable inventions, ,
9	31-01-2020	Applications for patents
Tutorial-6	01-02-2020	
10	05-02-2020	Term of patent,
Tutorial-7	08-02-2020	
11	12-02-2020	revocation of patents,
12	14-02-2020	compulsory licensing,. Offences and penalties
Tutorial-8	15-02-2020	
13	19-02-2020	Registration of designs, copyright,
Tutorial-9	22-02-2020	
14	04-03-2020	prohibition of certain designs,cancellation of designs,
Tutorial-10	07-03-2020	
15	11-03-2020	Offences and penalties.
16	13-03-2020	Brief study of prescription and Non-prescription Products
Tutorial-11	14-03-2020	Revision of III Sessional Topics

Text books (Theory) :

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

Reference books (Theory):

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: Vallabhprakashan ; 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

Name of the Subject	Medicinal Chemistry (Theory)
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LECTURE PLAN - Theory

Sessional	Number of Hours of Didactic Lecture	No. of Hours of other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
	Medicinal Chemistry			
I	29	02	31	10
II	29	02	31	08
III	19	07	26	04
Total Number of Hours	77	11	46	22

I SESSIONAL**29 Lectures + 02 Activities+10 Tutorials**

Lecture No.	Date	Contents of the Lecture
Activity 1	17.06.2019	Orientation about subject
I. Steroidal Hormones and Adrenocorticoids		05 Hours
1	19.06.2019	Estrogens: estradiol, DES Progestines: progesterone, norethindrone
Tutorial 1	19.06.2019	
2	20.06.2019	Testosterone, nandralone
3	24.06.2019	Betamethasone
4	26.06.2019	Beclomethasone
Tutorial 2	26.06.2019	
5	27.06.2019	Prednisolone
II. A study of the development of the following classes of drugs including SAR, mechanism of action, synthesis of important compounds (marked with asteric*), brand names of important marketed products and their side effects.		
01. Anti-infective agents		15 Hours
6	01.07.2019	a)Local anti-infective agents: Alcohols: isopropyl alcohol Phenols: cresols, hexyl resorcinol

7	03.07.2019	Cationic surfactants: benzalkonium chloride, cetyl pyridinium bromide Nitrofurans: nitrofurazone, furazolidone
Tutorial-03	03.07.2019	
8	04.07.2019	b)Antifungal agents: Azoles: miconazole, ketoconazole, fluconazole
9	08.07.2019	Miscellaneous: tolnaftate, naftifine
10	10.07.2019	Antifungal Antibiotics: amphotericin, nystatin, griseofulvin
Tutorial-04	10.07.2019	
11	11.07.2019	c)Urinary tract anti-infectives: SAR of quinolone antibacterial agents, Norfloxacin, ciprofloxacin*,
12	15.07.2019	sparfloxacin, ofloxacin
13	17.07.2019	d) Antitubercular agents: Management of tuberculosis
Tutorial-05	17.07.2019	
14	18.07.2019	Synthetic anti TB agents: INH*, Pyrizinamide, ethambutol
15	22.07.2019	Anti TB antibiotics: rifampin, capreomycin
16	24.07.2019	e)Antiviral agents and Anti AIDS agents: amantadine, acyclovir, trifluridine, zidovudine, stavudine

Tutorial-06	24.07.2019	
17	25.07.2019	f)Antiprotozoal agents: Introduction to protozoal diseases and causative organisms.
18	29.07.2019	Metronidazole, diloxanide furoate, dehydroemetine, nifurtimox
19	31.07.2019	g) Anthelmintics: Benzimidazoles: mebendazole, albendazole
Tutorial-07	31.07.2019	
20	01.08.2019	Piperazine, diethylcarbamazine, ivermectin
02. Sulfonamides and sulfones		05 Hours
21	05.08.2019	History and development of sulfonamides, SAR and mechanism of action of Sulfonamides, pKa of Sulfas and Crystalluria
Tutorial-08	07.08.2019	
22	07.08.2019	Sulfamethoxazole, sulfisoxazole
23	08.08.2019	sulfacetamide*, sulfasalazine
24	14.08.2019	Folate reductase inhibitors: trimethoprim*, synergistic action of Cotrimoxazole
25	19.08.2019	Sulfones: dapsone
03. Antimalarials		05 Hours
25	21.08.2019	Etiology of malaria, SAR and mechanism of action of quinoline Antimalarials

Activity-02	21.08.2019	Group discussion
26	22.08.2019	Quinine sulphate, Chloroquine phosphate,
27	26.08.2019	Amodiaquine, pamaquine*
Tutorial-09	28.08.2019	
28	28.08.2019	Primaquine, Quinacrine
29	04.09.2019	Chloroguanide, cycloguanil, pyrimethamine
Tutorial-10	04.09.2019	

II SESSIONAL**29 Lectures + 02 Activities + 08 Tutorials**

04. Antibiotics		12 Hours
1	05.09.2019	Historical background Classification of antibiotics.
2	09.09.2019	Beta lactam antibiotics: Development of acid resistant and extended spectrum Penicillins.
Tutorial-1	11.09.2019	
3	11.09.2019	Penicillin G, ampicillin, amoxicillin, cloxacillin

4	23.09.2019	Beta lactamase inhibitors: clavulanic acid, thienamycin
5	25.09.2019	Cephalosporins: cephelexin, cefadroxil cefuroxime
Activity-01	25.09.2019	
6	30.09.2019	Aminoglycosids: streptomycin, neomycin,
7	03.10.2019	Amikacin, gentamicin
8	09.10.2019	Tetracyclines: Chemistry and SAR of tetracyclines
Tutorial-2	09.10.2019	
9	10.10.2019	Chlortetracycline, doxycycline, Minocycline
10	14.10.2019	Macrolides: erythromycin, azithromycin
11	16.10.2019	Miscellaneous: clindamycin, bacitracin
Tutorial-3	16.10.2019	
12	17.10.2019	chloramphenicol*

05. Antineoplastic agents		6 Hours
13	21.10.2019	Historical background and classification of antineoplastic agents
14	23.10.2019	Alkylating agents: cyclophosphamide, mechlorethamine, Cholrambucil
Tutorial-4	23.10.2019	
15	24.10.2019	Antimetabolites: mercaptopurine, flurouracil, methotrexate
Tutorial-5	30.10.2019	
16	30.10.2019	Antibiotics: dactinomycin, mitomycin, streptozocin
17	31.10.2019	Group discussion
18	04.11.2019	Plant products: etoposide, taxol, vincristine and vinblastine
Tutorial-6	06.11.2019	
19	06.11.2019	Miscellaneous: cisplatin, interferons
06. Hypoglycemic agents		3 Hours

20	07.11.2019	History, development and SAR of
21	11.11.2019	sulfonylureas: tolbutamide*, chlorpropamide, glipizide, Metaglinides: repaglinide
Tutorial-7	13.11.2019	
22	13.11.2019	Thiazolidiones: rosiglitazone, pioglitazone Biguanides: metformin, phenformin Miscellaneous: acarbose, miglitol
07. Thyroid and Antithyroid agents		1 Hour
23	14.11.2019	L-thyroxine, L-threonine, Propyl thiouracil, methimazole
o8. Diuretics		05 Hours
24	18.11.2019	Carbonic anhydrase inhibitors: acetazolamide*
25	20.11.2019	Thiazide diuretics: SAR of thiazide diuretics, chlorthiazide, benzthiazide, xipamide, chlorthalidone
Tutorial-8	20.11.2019	
26	21.11.2019	Loop diuretics: frusemide*, ethacrynic acid
27	25.11.2019	Potassium sparing diuretics: spironolactone, amiloride
28	27.11.2019	Miscellaneous: mannitol
Activity-02	27.11.2019	
29	28.11.2019	Revision

III SESSIONAL

19 Lectures + 07 Activities+04 Tutorials

09. Diagnostic agents		02 Hours
1	16.12.2019	Iodipamide, diatrizoate sodium Amino hippurate,
2	18.12.2019	sulfobromphthalein, fluorescein sodium
Tutorial 1	18.12.2019	
3	19.12.2019	
10. Modern concept of rational drug design		04 Hours
4	20.01.2020	A brief introduction to prodrug & drug latentiation,
5	22.01.2020	A brief introduction to drug latentiation,
Tutorial-2	22.01.2020	
6	23.01.2020	Combinatorial chemistry,
7	27.01.2020	General pathways & factors affecting drug metabolism
Activity-1	29.01.2020	Group discussion
11. Cardiovascular agents		12 Hours
8	29.01.2020	a)Antianginal agents and vasodilators Nitrovasodilators: amyl nitrite, isosorbide dinitrate
9	30.01.2020	Calcium channel blockers: verapamil, diltiazem

10	03.02.2020	b)Antiarrhythmic agents: encainide	Class I: quinidine, phenytoin, lidocaine,
11	05.02.2020	Class II: beta blockers- propranolol Class III: amiodarone	
12	06.02.2020	Class IV: Calcium channel blockers: verapamil, diltiazem	
13	10.02.2020	c)Antihypertensive agents: ACE inhibitors: captopril, enalapril	betablockers: propranolol*
14	12.02.2020	Angiotensin antagonists: losartan Calcium channel blockers: nifedipine, amlodipine	
15	13.02.2020	Adrenergic agents: clonidine, methyl dopa	
16	17.02.2020	Adrenergic antagonists: prazosin, reserpine	
17	19.02.2020	d)Antihyperlipidemic agents: types of hyperlipoproteinemia	clofibrate
18	20.02.2020	fenofibrate, cholestyramine, lovastatin, simvastatin	
19	24.02.2020	e)Anticoagulants: warfarin, dicumarol, anisindione	
Activity-2	26.02.2020		-
Activity-3	27.02.2020		-
Activity-4	02.03.2020		-

Tutorial-3	04.03.2020	
Activity-5	05.03.2020	-
Activity-6	09.03.2020	-
Activity-7	11.03.2020	-
Tutorial-4	12.03.2020	-

Text Books

1. Wilson and Giswolds, Text book of Organic and pharmaceutical chemistry
2. Principles of Medicinal chemistry- William O.Foye
3. A I Vogel Text book of Practical Organic Chemistry

Reference Books

1. Text Book of organic chemistry by I. L.Finar
2. S.N. Pandeya, A Text Book of Medicinal Chemistry, S.G. Publisher, Varana-si, Vol I& I

Course and year	Pharm D 3 rd year
Name of the Subject	Pharmaceutical Formulation (Theory and practical)
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Lecture Plan for Three Sessional:

Sessional Number	Number of Hours of Didactic Lecture	No. of Hours of other pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	22	04	26	12
II	17	07	24	08
III	18	02	20	07
Total number of lectures	57	13	70	27

Lecture Plan

I SESSIONAL

24 Lectures + 08 Activities

Lecture No.	Date	Lecture Details
Pharmaceutical Dosage Forms		50 Hours
Unit-1: Introduction to Pharmaceutical Dosage Form		
	17.06.2019	Orientation on basic Pharmaceutics
	18.06.2019	Orientation on basic Formulations
	19.06.2019	Tutorial-1
	24.06.2019	Orientation on Formulations with respect to pharmacological aspect
Unit-2: Tablets		18 Hours
	25.06.2019	Introduction-Solids-tablets
	26.07.2019	Tutorial-2
	01.07.2019	Tablets Advantages and disadvantages
	02.07.2019	Excipients & Granulation techniques
	03.07.2019	Tutorial-3
	09.07.2019	Tablets compression
	11.07.2019	Tutorial-4
	15.07.2019	Manufacturing defects of tablets-
	16.07.2019	Evaluation of Tablets
	17.07.2019	Tutorial-5
	22.07.2019	<i>Evaluationcontd.,</i>
	23.07.2019	<i>Types of tablets</i>
	24.07.2019	Tutorial-6
<u>Activity-01</u>	29.07.2019	<u>Class test</u>
	30.07.2019	<i>Tablet coating-Advantages, Disadvantages and Equipment</i>
	31.07.2019	Tutorial-7
	05.08.2019	<i>Types of Coating-Sugar Coating-Process</i>
	06.08.2019	<i>Film Coating-Materials and process</i>
	07.08.2019	Tutorial-8

	13.08.2019	<i>Coating problems, Remedy and evaluation</i>
	14.08.2019	Tutorial-9
Activity 02	19.08.2019	<i>Class test</i>
	Unit -3 <i>Capsules</i>	<i>Capsules-Introduction, Types , Advantages and Disadvantages and raw materials</i>
	20.08.2019	<i>Production of gelatin and other polymer based capsules</i>
	21.08.2019	Tutorial-10
	26.08.2019	<i>Production of hard gelatin capsules</i>
	27.08.2019	<i>Filling of hard gelatin capsules</i>
<u>Activity-03</u>	28.08.2019	<u>Tutorial-Class test</u>
	03.09.2019	<i>Soft Gelatin Capsules-Production and filling</i>
	03.09.2019	<i>Essential Properties of gelatin</i>
	04.09.2019	Tutorial-11
	04.09.2019	Advantages and Disadvantages soft gelatin capsules
<u>Activity-04</u>	09.09.2019	Revision
<u>Activity-05</u>	11-09-2019	Tutorial-12 –Group Discussion/Seminar
	11-09-2019 to	1st Sessional
	19-09-2019	

II SESSIONAL**26 Lectures + 07 Activities**

Lecture No.	Date	Lecture Details
Unit-4: Liquid orals		18 Hours
	23.09.2019	Introduction-Monophasic Liquid dosage forms-
	24.09.2019	Advantages and disadvantages
	25.09.2019	Tutorial-13
	30.09.2019	Solution-solubility and enhancement techniques

	01.10.2019	Solubility enhancement techniques
	01.10.2019	Syrups-Formulation and evaluation
	09.10.2019	Tutorial-14
	14.10.2019	<i>Elixirs-Formulation and Evaluation</i>
Activity- 06	15.10.2019	Class test
	16.10.2019	Tutorial-15
	21.10.2019	Biphasic liquid dosage forms-Introduction,
	22.10.2019	advantages and disadvantages biphasic
	23.10.2019	Tutorial-16
	29.10.2019	Suspension -approaches for formulation
	29.10.2019	Suspension-approaches for formulation <i>cont</i>
	30.10.2019	Tutorial-17
	04.11.2019	<i>Suspension-Evaluation and packaging</i>
Activity-07	05.11.2019	Class Test 2
	06.11.2019	Tutorial-18
	11.11.2019	Emulsion -Introduction
	12.11.2019	Formulation-Mechanism
	13.11.2019	Tutorial-19
	18.11.2019	Emulsifying agents-Classification
	19.11.2019	Emulsion Types-Formulation
	20.11.2019	Tutorial-20
	25.11.2019	Emulsion-Evaluation and Instability problems
	26.11.2019	Emulsion-Evaluation and Instability problems cont
Activity-08	27.11.2019	Class-Test 3

Activity-09	03.12.2019	Revision-1
Activity-10	04.12.2019	Revision-2
Activity-11	03.12.2019	Seminar-1
Activity-12	04.12.2019	Seminar-2
	14.12.2019 to 21.12.2019	2nd Sessional Examination

III SESSIONAL**24 Lectures + 02 Activities**

Lecture No.	Date	Lecture Details
Unit 5 Parenterals		
	20.01.2020	Introduction and the classification Parenterals-
	21.01.2020	Advantages And Disadvantages
	22.01.2020	Tutorial 20
	27.01.2020	Parenteral-Additives , Filling, Sealing
	28.01.2020	Aseptic techniques
	28.01.2020	Evaluation of parenterals
Activity-13	29.01.2020	Class Test-Tutorial-21
Unit-6: Semi solids (Factors effecting absorption, packing, storage and labeling)		
	03.02.2020	Skin Structure
	04.02.2020	Skin Structure
	05.02.2020	Tutorial 22
	10.02.2020	Barriers-Drug penetration and permeation

	11.02.2020	OINTMENTS—type of ointment bases
	12.02.2020	Tutorial 23
	17.02.2020	Preparation of the ointment
	18.02.2020	GEL type and the formulation of the gel
	19.02.2020	Tutorial 24
<i>Activity 14</i>	24.02.2020	Class test
Unit-7: Definition and the concept of controlled and novel drug Delivery System		
	25.02.2020	Definition and the concept of controlled and novel drug delivery systems
	26.02.2020	Tutorial 25
	02.03.2020	Mucosal Drug delivery system
	03.03.2020	Transdermal drug delivery stems
	04.03.2020	Tutorial 26
	09.03.2020	Vaginal drug delivery system
	10.03.2020	Nasal and implantable drug delivery systems
	11.03.2020	Tutorial 24
	16.03.2020	Ocular drug delivery system
	16.03.2020	Targeted drug delivery system-nanoparticles, monoclonal antibodies etc
	19.03.2020 to 25.03.2020	IIIrd Sessional

Practicals

Sessional Number	Number of Didactic Experiment	Total Number of experiments.
I	11	11
II	10	08
III	09	08
Total number of lectures	30	27

Experiment Plan**11 Experiments****I SESSIONAL**

Experiment No.	Batch-I Date	Batch-II Date	Experiment Details
	17-06-2019 Introduction/Orientation for formulation		

1	17.06.2019	18.06.2019	Preparation of granules-wet granulation
2	24.06.2019	25.06.2019	Preparation of conventional tablet
3	01.07.2019	02.07.2019	Evaluation of compressed tablet-wet
4	08.07.2019	09.07.2019	Preparation of tablets by direct compression
5	15.07.2019	16.07.2019	Evaluation of compressed tablet-DC
6	22.07.2019	23.07.2019	Preparation of soluble tablets
7	29.07.2019	30.07.2019	Evaluation of compressed tablet-ST
8	05.08.2019	06.08.2019	Preparation of Chewable tablets
9	19.08.2019	13.08.2019	Evaluation of compressed tablet-CT
10	26.08.2019	20.08.2019	Calculation to find fill weight for capsules
11	03.09.2019	27.08.2019	Formulation and filling of hard gelatin capsules

II SESSIONAL**08 Experiments**

Experiment No.	Date	Date	Experiment Details
12	09.09.2019	03.09.2019	Preparation Aqueous iodine solution
13	23.09.2019	24.09.2019	Preparation of Ferrous sulphate syrup
14	30.09.2019	01.10.2019	Preparation of Piperazine citrate elixir
15	14.10.2019	09.10.2019	Preparation and evaluation of Aluminium hydroxide suspension-using Na citrate
16	21.10.2019	15.10.2019	Preparation and evaluation of Aluminium hydroxide suspension-using Fructose
17	29.10.2019	22.10.2019	Preparation of castor oil emulsion

18	04.11.2019	05.11.2019	Preparation of liquid paraffin emulsion
19	11.11.2019	12.11.2019	Preparation of Normal saline solution and Sealing of Ampoules
	18.11.2019	19.11.2019	Record Evaluation/Repeat experiments
	25.12.2019	26.12.2019	Record Evaluation/

III SESSIONAL**08 Experiments**

Experiment No.	Date	Date	Experiment Details
20	20.01.2020	21.01.2020	Preparation of Sulfur ointment
21	27.01.2020	28.01.2020	Preparation of salicylic acid and benzoic acid ointment
22	03.02.2020	04.02.2020	Formulation and evaluation of diclofenac gel
24	04.02.2020	05.02.2020	Preparation of Face powders
25	10.02.2020	11.02.2020	Preparation of cold cream
26	17.02.2020	18.02.2020	Preparation of vanishing cream
27	24.02.2020	25.02.2020	Preparation of clear liquid shampoo
28	02.03.2020	03.03.2020	Preparation of toothpaste
	09.03.2020	10.03.2020	Record Evaluation/



JSS Academy of Higher Education & Research, Mysuru

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III Pharm. D Time Table (AY: 2019-20)

Day	9-10 am	10-11 am	11-12 am	12 -1 pm	1-2 pm	2-3 pm	3-4 pm	4-5 pm
Monday	PA(TU) [JSK]	MC(T) [BG]	PF(T) [RS]	PF(TU) [RS]	LUNCH BREAK	Batch-I PF(P)[RS] Batch –II PA(P) [JSK]		
Tuesday	PT II(T) [GKS]	PF(T) [RS]	PA(T) [JSK]	PC II(T) [JS]		Batch-II PF(P)[RS] Batch-I PA(P)[JSK]		
Wednesday	PT II(T) [GKS]	MC(T) [BG]	PA(T) [JSK]	PC II(T) [JS]		PJ (T) [SK]	PT II(T) [GKS]	MC(TU) [BG]
Thursday	PC II(T) [JS]	MC(T) [BG]	PA(T) [JSK]	PC II(TU) [JS]		Batch –I MC(P) [RK] Batch-II PC II(P)[JS]		
Friday	Batch-I PT II(P) [GKS]			PJ(T) [SK]		Batch –II MC(P) [RK] Batch-I PC II(P) [JS]		

Saturday	Batch-II PT II(P) [<i>GKS</i>]	PJ(TU) [<i>SK</i>]	PT II(TU) [<i>GKS</i>]	Library/Sports
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T- Theory, P- Practical, TU-Tutorial

Subject-in-Charge:

1. Pharmacology II - (PC-II) : Mr.J.Saravanan[*JS*]
2. Pharmaceutical Analysis- (PA) : Mr. J S K Nagarajan [*JSK*]
3. Pharmacotherapeutics II (PT-II) : Dr. G K Sadagoban [*GKS*]
4. Pharmaceutical Jurisprudence (PJ) : Dr.Santhosh Kumar [*SK*]
5. Medicinal Chemistry (MC) : Dr.B.Gowramma [*BG*] (Theory) Dr. R.Kalirajan [*RK*] (Practical)
6. Pharmaceutical Formulations (PF) : Dr. R.Suresh kumar [*RS*]

Class-in-Charge: Dr.G.K.Sadagoban, Lecturer, Dept. of Pharmacy Practice [sadagoban@jssuni.edu.in], Mob: 9894876656]