

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan M. Sc. III Sem. Pharmaceutical Chemistry (July 2016 - Dec 2016)
 Subject - Medicinal Chemistry

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	Unit 1	Introduction of Non steroidal Anti-inflammatory drugs (NSAIDs)
2		Classification and SAR of heterocyclic acid and analogues
3		Classification and SAR of heterocyclic acid and analogues
4		Classification and SAR of heterocyclic acid and analogues
5		Aryl Propionic acid analogues
6		Salicylic acid analogues
7		Synthesis,mode of action,therapeutic uses and adverse effects of Iodomethacin
8		Synthesis,mode of action,therapeutic uses and adverse effects of Iodomethacin
9		Synthesis,mode of action,therapeutic uses and adverse effects of Tolemetin sodium
10		Synthesis,mode of action,therapeutic uses and adverse effects of Tolemetin sodium
11		Synthesis,mode of action,therapeutic uses and adverse effects of Ibuprofen
12		Synthesis,mode of action,therapeutic uses and adverse effects of Ibuprofen
13		Synthesis,mode of action,therapeutic uses and adverse effects of Naproxin
14		Synthesis,mode of action,therapeutic uses and adverse effects of Naproxin
15		Synthesis,mode of action,therapeutic uses and adverse effects of Aspirin
16		Synthesis,mode of action,therapeutic uses and adverse effects of Aspirin
17		Synthesis,mode of action,therapeutic uses and adverse effects of Paracetamol
18		Synthesis,mode of action,therapeutic uses and adverse effects of Paracetamol
19		Synthesis,mode of action,therapeutic uses and adverse effects of Phenyl butazone
20		Synthesis,mode of action,therapeutic uses and adverse effects of Phenyl butazone
21	Unit 2	local anesthetics introduction,definition
22		local anesthetics classification,theories (five theories)
23		mechainsm of action of local anesthetics
24		Preparation,mode of action,therapeutic uses and adverse effect of Procaine
25		Preparation,mode of action,therapeutic uses and adverse effect of Benzocaine
26		Preparation,mode of action,therapeutic uses and adverse effect of Lignocaine HCl
27		Preparation,mode of action,therapeutic uses and adverse effect of Lignocaine HCl
28		Preparation,mode of action,therapeutic uses and adverse effect of Diperedon HCl
29		Preparation,mode of action,therapeutic uses and adverse effect of Dibucaine
30		Preparation,mode of action,therapeutic uses and adverse effect of Dibucaine
31		General Anesthetics: Definition, Stages of Anesthesia
32		Classification and Theories of General Anesthetics
33		Mechanism of action of general anesthetics
34		Preparation,mode of action,therapeutic uses and adverse effect of thiopental sodium
35		Preparation,mode of action,therapeutic uses and adverse effect of thiopental sodium
36		Preparation,mode of action,therapeutic uses and adverse effect of Halothane
37		Preparation,mode of action,therapeutic uses and adverse effect of cyclopropane
38		Preparation,mode of action,therapeutic uses and adverse effect of Nitrous oxide
39		Preparation,mode of action,therapeutic uses and adverse effect of Chloroform
40		Preparation,mode of action,therapeutic uses and adverse effect of Tribromoethanol

41	Unit 3	Antihypertensive: General Introduction, Causes and types of hypertension
42		Classification of antihypertensive, Mode of action of Calcium channel blockers
43		Preparation, Mode of action, Therapeutic uses and Adverse effect of Metraminol
44		Preparation, Mode of action, Therapeutic uses and Adverse effect of Naphazoline
45		Preparation, Mode of action, Therapeutic uses and Adverse effect of Methyl Dopa
46		Preparation, Mode of action, Therapeutic uses and Adverse effect of Hexaamethonium bromide
47		Preparation, Mode of action, Therapeutic uses and Adverse effect of Rauwolfia
48		Diuretics: Anatomy and Physiology of Kidney,
49		Mechanism of Urine Formation
50		Classification and of Diuretics
51		SAR of Mercurial,SAR of Thiazides
52		SAR of Xanthines
53		Mechanism of action of Mercurial,Mechanism of action of Carbonic anhydrase
54		Preparation, Mode of action, Therapeutic uses and adverse effect of Furosemide
55		Preparation, Mode of action, Therapeutic uses and adverse effect of Chlorthiamide
56		Preparation, Mode of action, Therapeutic uses and adverse effect of Acetazolamide
57		Preparation, Mode of action, Therapeutic uses and adverse effect of spiromolactone
58	Unit 4	Anti-histaminics drugs introduction, classification
59		Mechanism of action and SAR of Amino alkylethers and ethylenediamine
60		Synthesis of diphenhydramine hydrochloride
61		Synthesis of Tripeleennamine hydrochloride
62		Synthesis of promethazine hydrochloride
63		Synthesis of Chloruclizine hydrochloride
64		Synthesis of AntaZoline HCl
65		Anti-malarial: classification,Etiology of malaria
66		Mechanism of action
67		SAR of 4-aminoquinolines and 8-aminoquinoline
68		Synthesis of chloroquine phosphate
69		Synthesis of amidiquine hydrochloride
70		Synthesis of primquine phosphate
71		Synthesis of Proguanil hydrochloride
72		Synthesis of Trimethoprin
73		Anti-tubercular drugs: classification,rifampicin,Streptomycin,Etambutol
74	Unit 5	Synthesis ,uses and side effects of Sulfanilamide
75		Synthesis ,uses and side effects of Sulfapyridine
76		Synthesis ,uses and side effects of Sulfadiazine and SAR of Sulfanilamide
77		Roll of alkylating agents,Synthesis,uses,properties and side effect of Mustard drug
78		Synthesis,uses,properties and side effect of Mechloroethamic,Cyclophosphamide
79		Synthesis,uses,properties and side effect of Melphanol Uracil

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan - M.Sc. III Sem Pharmaceutical Chemistry (July 2016 - Dec 2016)
 Subject - Chemistry of Natural Products
Teacher - Dr Lal Kumar

Day/Lecture	Unit	Topic
1	Unit 1	classification, Nomenclature, occurrence, isolation, general method of structural determination, Isoprene rule
2		Structure determination, stereochemistry, biosynthesis and synthesis of- Citral
3		Geraniol
4		α Terpenol
5		Menthol
6		Farnesol
7		Zingiberene
8		Santonin
9		Phytol
10		Abietic Acid
11		β - Carotene
12	Unit 2	Alkaloids : Definition, nomenclature and physiological action,
13		Alkaloids : occurrence, isolation,
14		Alkaloids : general method of structure elucidation.
15		degradation, classification based on nitrogen heterocyclic ring,
16		role of alkaloids in plants.
17		Structure, stereochemistry, synthesis and biosynthesis of - Ephedrine
18		(+) - Coniine
19		Nicotine
20		Atropine
21		quinine
22		Morphine
23	Unit 3	occurrence, nomenclature, basic skeleton,
24		Diel's hydrocarbon
25		stereochemistry of steroids
26		Isolation, structure determination and synthesis of - cholesterol
27		Bile Acid
28		Androsterone
29		Testosterone
30		Estrone
31		Progesterone
32		Aldosterone
33		Biosynthesis of Steroids
34	Unit 4	Occurrence, nomenclature of plant pigments
35		general method of structure determination of Plant pigments
36		Isolation and synthesis of - Apigenin
37		Luteolin quercetin
38		Myrcetin
39		quercetin 3- glucoside
40		Vitexin
41		Diadzein
42		Aureusin
43		Cyanidin - 7 arabinoside
44		Cyanidin
45		Hirsutidin
46		Biosynthesis of flavonoids : Acetate pathway
47		Biosynthesis of flavonoids : shikimic acid pathway
48		Prophyrins : Structure and synthesis of Haemoglobin and Chlorophyll
49	Unit 5	Prostaglandin : occurrence nomenclature, classification,
50		Prostaglandin : biogenesis and physiological effects
51		Synthesis of PGE2
52		Synthesis of PGE2a
53		Pyrethroids : Synthesis and reaction

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan - M.Sc. III Sem Pharmaceutical Chemistry (July 2016 - Dec 2016)
 Subject - Toxicology
Teacher - Prof. Deepika Choudhary

Day/Lecture	Unit	Topic
	1	Toxicology
1		Defination and type of toxicology
2		Basic principal of toxicology
3		Carcinogenicity
4		Mutagenicity
5		Teratogenicity
6		Acute, Sub-acute and Chronic toxicity
7		Pre clinical evaluation of Drugs
	2	Drug Dependence
8		Defination, Drugs of abuse, Classification of drug of abuse
9		Drug Addiction
10		Physical dependence and Psycological dependence
11		Mechanism of tolerance and dependence
	3	Poisoning
12		Classification of Poisons
13		Factors modifying the action of poison
14		Types of Poisoning
15		General treatment and management of Poisoning
	4	Detailed treatment of poisoning of the following substance
16	a)	Metals such as- As, Hg, Pd,Zn, Cyanide
17		Heavy metals
18	b)	Opium, Morphine, L.S.D.
19	c)	Alcohol, Barbiturates
20	d)	Salicylates and Paracetamol
21	e)	Digitalis, Nicotine and Cocaine
	5	
22	a)	Environmental pollution : Types of pollution
23		Methods of control of pollution
24	b)	Drugs and pregnancy: Drug drug interaction during pregnancy
25		Teratogenic drugs, Drugs contraindicated in pregnancy
26	c)	Drug interaction: Definations, factors predisposing to drug interactions
27		Classification and mechanism of drugs interaction
28		Adverse drugs interactions

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan - M.Sc. III Sem Pharmaceutical chemistry (July 2016 - Dec 2016)
 Subject - Pharmacognosy
Teacher - Prof. Deepika Choudhary

Day/Lecture	Unit	Topic
1	Unit 1	Cultivation : Introduction
2	Unit 1	Factor affecting Cultivation
3	Unit 1	Collection & the technique
4	Unit 1	Harvesting : Introduction and techniques
5	Unit 1	Drying
6	Unit 1	Plant growth Hormones
7	Unit 1	Pest and Pest control methods
8	Unit 1	Pest control methods
9	Unit 1	Revision
10	Unit 2	Natural Sources of Drugs : Introduction
11	Unit 2	Natural Sources of Drugs: Higher plants
12	Unit 2	Natural Sources of Drugs: Microbes
13	Unit 2	Natural Sources of Drugs: Animals
14	Unit 2	Natural Sources of Drugs: Marine Organisms
15	Unit 2	Classification of Drugs from Natural origin
16	Unit 2	Classification of Drugs from Natural origin : Morphological
17	Unit 2	Classification of Drugs from Natural origin : Taxonomical
18	Unit 2	Classification of Drugs from Natural origin : Pharmacological
19	Unit 2	Classification of Drugs from Chemical nature
20	Unit 3	Phyto constituents of Therapeutic significance
21	Unit 3	General Methods of Extraction
22	Unit 3	Isolation of Phyto constituents
23	Unit 3	Identification and characterization of carbohydrates
24	Unit 3	Identification and characterization of Glycosides
25	Unit 3	Identification and characterization of Phenolic compounds
26	Unit 3	Identification and characterization of Steroids
27	Unit 3	Identification and characterization of Alkaloids
28	Unit 4	Isolation of Following Phyto Constitutents(Including industrial Methods)
29	Unit 4	Isolation of Following Phyto Constitutents : Morphine
30	Unit 4	Isolation of Following Phyto Constitutents : Quinine
31	Unit 4	Isolation of Following Phyto Constitutents : Glycosides
32	Unit 4	Isolation of Following Phyto Constitutents : Methanol
33	Unit 4	Isolation of Following Phyto Constitutents : Thymol
34	Unit 4	Isolation of Following Phyto Constitutents : Digitalis
35	Unit 4	Isolation of Following Phyto Constitutents : Diosgenin
36	Unit 5	Herbs as Health foods and as Cosmetics
37	Unit 5	Tissue culture : Introduction & its Applications
38	Unit 5	Tissue culture and its scope in production of phytopharmaceuticals
39	Unit 5	Tissue culture and its scope in production of phytopharmaceuticals
40		Revision

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. III Sem Pharmaceutical Chemistry (July 2016 - Dec 2016)

Subject - Pharmaceutical Biotechnology

Teacher - Prof. Deepanshu Pandey

Day/Lecture	Unit	Topic
1	Unit 1	Basics of Immunology:
2		Immunity: Cell and Tissues of Immune system
3		Antigens : Characteristics and Types.
4		Antigens : Characteristics and Types.
5		Antibodies : Structure and Types.
6		Antibodies : Structure and Types.
7		Antibodies : Structure and Types.
8		Antigen- Antibody Reactions and its applications.
9		Hypersensitivity.
10		Hypersensitivity.
11	Unit 2	Vaccinology :
12		Vaccines- Conventional vaccines
13		Modern vaccines technologies
14		Genetically improved live vaccine
15		Genetically improved live vaccine
16		Genetically improved subunit vaccine
17		Genetically improved subunit vaccine
18		Pharmaceutical consideration
19		Pharmaceutical consideration
20		Doubt Session
21	Unit 3	Genetics
22		Structure and function of DNA
23		DNA replication and repair
24		Expression of genetic information
25		Structure and function of RNA
26		Transcription
27		Genetic code
28		Translational & post Translational modification
29		Translational & post Translational modification

30	Unit 4	Recombinant DNA Technology :
31		Gene Cloning
32		Restriction enzymes
33		Vectors
34		Genomic libraries
35		Polymerase chain Reaction
36		Polymerase chain Reaction
37		Methodology of production of Biopharmaceutical by Recombinant DNA Technology
38		Hormones
39		Interferons
40		t-Plasminogens Activator
41		Monoclonal antibodies and Hybridoma Technology
42		Monoclonal antibodies and Hybridoma Technology
43	Unit 5	Gene Therapy :
44		General Introduction
45		Potential target diseases for gene therapy
46		Gene Transfer method
47		Molecular Transfer of drug targeting
48		Drug Delivery System in Gene Therapy
49		Clinical Studies

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. III Sem Pharmaceutical Chemistry (July 2016 - Dec 2016)

Subject - Pharmaceutical practical Lab-course-I

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Determination of Solubility of Benzoic acid in water at different temperature and hence its heat of solution
2		Estimation of Ascorbic acid Tablets by Iodometric methods
3		Estimation of available chlorine in Bleaching Powder by Iodometric methods
4		Estimation of available Oxygen in Hydrogen Peroxide by KMnO ₄ methods
5		Determination of the wavelength of Maximum Absorbance and Molar extinction coefficient of a given sample
6		Determination of Paracetamol and Ibuprofen in the given Tablets
7		Determination of Phosphate Concentration in a Soft Drink.
8		UV visible determination of Amino acids
9		UV visible determination of Proteins
10		UV visible determination of Carbohydrates
11		UV visible determination of Cholesterol
12		UV visible determination of Ascorbic Acids
13		UV visible determination of Aspirin
14		UV visible determination of Caffeine
15		Separation, Identification mixture of Glucose, Fructose, Sucrose by paper chromatography
16		TLC-Separation of Nickel, Manganese, Cobalt and Zinc. Determination of R _f Values
17		Separation of Anthracene and Picric acid from Anthracene picrate by Column Chromatography
18		Separation and Estimation of Mg(II) and Zn(II) by Ion Exchange Methods

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Department of Chemical Sciences

Lesson Plan - M.Sc. III Sem Pharmaceutical Chemistry (July 2016 - Dec 2016)

Subject - Pharmaceutical practical Lab-course-II

Teacher - Dr. Mukesh Gupta

Day/Lecture	Topic
1	Determination of Molar Refractivity of Methyl Acetate, Ethyl Acetate, N-Hexane and Carbon tetra chloride and calculate the Refractive Equivalent of C,H and Cl
2	Study the Influence of Solvent on Optical Rotation of Camphor
3	Polarometric determination of percent of two optical active substance in the given solution
4	Determination of Optical Rotation of Pharmaceutical Substances
5	Determination of Sodium and Potassium in a mixture by the use of Flame Photometer
6	Extraction of Quinine from Cinchona
7	Extraction of Papain from Papaya
8	Extraction of Menthol oil from Peppermint
9	Extraction of Eucalyptus Oil from Eucalyptus leaves/Bark

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan M. Sc. IV Sem. Pharmaceutical Chemistry (Jan 2022 - June 2022)
 Subject - Advanced Medicinal Chemistry

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	Unit 1	Theoretical basis of newer drug delivery systems
2		Theoretical basis of newer drug delivery systems
3		Prodrug, dendrimer and Polymers as carrier
4		Prodrug, dendrimer and Polymers as carrier
5		Enzyme Inhibition
6		Rational design based on inhibition kinetics,types
7		Rational design based on inhibition kinetics,types
8		Affinity-labeling agents
9	Unit 2	Pharmacodynamics-introduction
10		Elementary treatment of enzymes stimulation
11		Elementary treatment of enzymes stimulation
12		Enzymes inhibition
13		Sulphonamides-introduction,structure,properties
14		Synthesis of sulphonamides drugs
15		Membrane active drugs
16		Drug metabolism
17		Xenobiotics
18		Biotransformation
19		Significance of drug metabolism in medicinal chemistry
20		Significance of drug metabolism in medicinal chemistry
21	Unit3	Antibiotics and antibacterials drugs introduction
22		Antibiotic Lacam type- penicillins
23		Antibiotic Lacam type- penicillins
24		Antibiotic Lacam type- cephalosporins
25		Antibiotic Lacam type- cephalosporins
26		Anti-tubercular drugs
27		Anti-tubercular drugs
28		Streptomycin
29		Streptomycin
30		Broad spectrum antibiotics tetracyclines
31		Broad spectrum antibiotics tetracyclines
32		Anticancer-Dactinomycin(AntinomycinD)
33		Anticancer-Dactinomycin(AntinomycinD)

34	Unit 4	Classification,mode of action of Anticoagulants and anti platelets
35		Classification,mode of action of Anticoagulants and anti platelets
36		SAR,Side effects Anticoagulants and anti platelets
37		SAR,Side effects Anticoagulants and anti platelets
38		Biological evaluation and recent advance Anticoagulants and anti platelets
39		Classification,mode of action of Immunosuppressants
40		Classification,mode of action of Immunosuppressants
41		SAR,Side effects Immunosuppressants
42		SAR,Side effects Immunosuppressants
43		Biological evaluation and recent advance Immunosuppressants
44		Classification,mode of action of Antiviral and Anti HIV
45		Classification,mode of action of Antiviral and Anti HIV
46		SAR,Side effects Antiviral and Anti HIV
47		SAR,Side effects Antiviral and Anti HIV
48		Biological evaluation and recent advance Antiviral and Anti HIV
49		Classification,mode of action of Antiprotozoal
50		Classification,mode of action of Antiprotozoal
51		SAR,Side effects Antiprotozoal
52		SAR,Side effects Antiprotozoal
53		Biological evaluation and recent advance Antiprotozoal
54		Classification,mode of action of NSAIDS
55		Classification,mode of action of NSAIDS
56		SAR,Side effects NSAIDS(Non Steroidal ant-inflammatory drugs)
57		SAR,Side effects NSAIDS(Non Steroidal ant-inflammatory drugs)
58		Biological evaluation and recent advance NSAIDS(Non Steroidal ant-inflammatory drugs)
59	Unit 5	Classification,mode of action of Antihyperlipidemic Drugs
60		Classification,mode of action of Antihyperlipidemic Drugs
61		SAR,Side effects Antihyperlipidemic Drugs
62		SAR,Side effects Antihyperlipidemic Drugs
63		Biological evaluation and recent advance Antihyperlipidemic Drugs
64		Classification,mode of action of Antispasmodics and antiulcer Drugs
65		Classification,mode of action of Antispasmodics and antiulcer Drugs
66		SAR,Side effects Antispasmodics and antiulcer Drugs
67		SAR,Side effects Antispasmodics and antiulcer Drugs
68		Biological evaluation and recent advance Antispasmodics and antiulcer Drugs
69		Classification,mode of action of Antiparkinsonism
70		Classification,mode of action of Antiparkinsonism
71		SAR,Side effects Antiparkinsonism
72		SAR,Side effects Antiparkinsonism
73		Biological evaluation and recent advance Antiparkinsonism
74		Classification,mode of action of Antialzheimer Drugs
75		Classification,mode of action of Antialzheimer Drugs
76		SAR,Side effects Antialzheimer Drugs
77		SAR,Side effects Antialzheimer Drugs
78		Biological evaluation and recent advance Antialzheimer Drugs

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Drug Design

Teacher - Dr. Lal Kumar

Day/Lecture	Unit	Topic
1	Unit 1	Drug Design : Historical Perspective
2		Drug Design : Generation of Leads & Lead optimization
3		cell biology
4		Genomic as a source of drugs
5		Future development in the drug design
6	Unit 2	Structure aided Drug Design process
7		methods to derive 3D structures
8		Design Process
9		software aided drug design
10		optimization of identified compound
11		example of structure aided drug design
12	Unit 3	pharmacophoric approach
13		Pharmacophore based ligand design
14		pharmacore concepts
15		pharmacophore elements and representation
16		Active conformation
17		molecular superimposition
18		Receptor excluded
19		Receptor essential volumes
20		solvation effects
21		examples of 3D pharmacophore models and their use
22	Unit 4	quantitative structure activity relationship (QSAR)
23		Fundamentals of QSAR
24		biological data
25		additivity of group contribution Hansch Analysis and related approaches
26		physiological properties
27		statistical methods in QSAR
28		application of Hansch and related approaches
29		3D QSAR approach
30	Unit 5	generation of 3D coordinates
31		Sketch approach
32		conversion of 2D structure in 3D form
33		Force field
34		geometry optimization
35		energy minimizing procedures
36		quantum mechanical methods
37		conformational analysis
38		Pharmacophore identification
39		Molecular modeling in 3D QSAR CoMFA and related methods

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Modern Analytical Techniques

Teacher - Prof. Deepanshu Pandey

Day/Lecture	Unit	Topic
	1	
1		Theory and instrumentation of IR and FT-IR
2		Advantages and applications in structural elucidation of IR and FT-IR
3		NMR and C-13 NMR
4		Origin and spectra and Chemical shifts
5		Spin -Spin interaction and coupling constant
6		Instrumentation and application for structural elucidation
	2	
7		Mass spectra and instrumentation
8		Fragmentation pattern for structural elucidation
9		Application for structural elucidation
10		Application of GC-Mass
11		HPLC-Mass for complex mixtures
	3	
12		Theory and instrumentation of Fluorescence
13		Application of Fluorescence
14		Theory and instrumentation of X-Ray crystallography
15		Application of X-Ray crystallography
16		Theory and instrumentation of Ultra centrifugation
17		Application of Ultra centrifugation
18		Theory and instrumentation of Liquid Scintillation spectrometry
19		Application of Liquid Scintillation spectrometry
20		Theory and instrumentation of Auto radiography
21		Application of Auto radiography
	4	
22		Immunoassay Techniques: Enzyme and radioimmunoassay techniques
23		Theory of Enzyme and radioimmunoassay techniques
24		methods of Enzyme and radioimmunoassay techniques
25		Applications of Enzyme and radioimmunoassay techniques
	5	
		Thermal methods:
26		Thermo Gravimetry
27		Differential Scanning Calorimetry
28		Differential Thermal Analysis
29		Principle and application of light
30		Phase contrast
31		Scanning and Transmission electron microscopy
32		Cytometry and Flow cytometry

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Biopharmaceutics and Pharmacokinetics

Teacher - Prof. Deepika Chaoudhary

Day/Lecture	Unit	Topic
1	I	Biopharmaceutics:
2		Definition passage of drug across biological barrier
3		Physicochemical, biochemical and pharmaceutical factors influencing performance of drugs
4		Gastrointestinal absorption of drugs
5		Passage of drug across biological membranes
6		Gastrointestinal absorption mechanisms
7		Factor affecting drug Absorptions
8		Physiological Factors, Dietary factors, physicochemical factors
9		pH partition hypothesis
10		Dosage form factors
11		Methods of studying gastrointestinal absorption in vitro and in vivo methods
12		Drugs disposition, distribution in blood cellular distribution
13		Plasma Protein binding Tissue Protein Binding
14		Drugs Excretion, Routes of drug excretion
15		Renal excretion of drugs, factors affecting renal excretion
16		Biliary and salivary excretion of drugs
17		Drug Biotransformation
18		Pathway of drug metabolism, drug metabolising enzymes
19		Factor affecting drug metabolism and drug response
20		Inhibition and stimulation of drug metabolism
21		
22	II	Pharmacokinetics, Absorption, distribution
23		metabolism and excretion of drugs
24		fluid compartment and circulatory systems
25		Protein Binding
26		Significance of Plasma drug concentration measurements
27		Significance of Plasma drug concentration measurements
28		
29	III	Compartment models, Model Selection Criteria
30		Alaika information criterion
31		one compartment and two compartment models
32		Wagner Nelson and Reigelman Methods
33		Curve fittings
34		Regression procedure and area under blood level curves
35		
36	IV	Clinical pharmacokinetics
37		Urinary excretions
38		Computation of pharmacokinetics parameters from urine data
39		Hepatic clearance
40		Biliary excretions
41		Excretion ratio
42		Dosage Reigmen adjustment in patients with and without renal failure
43		Pharmacokinetics Drug Interactions and their Significance in combination therapy
44		
45	V	Bioavailability and bioequivalence
46		Federal requirements
47		Methods of determination of bioavailability using blood level and urinary excretion data
48		Design and evaluations

Maharaja Ranjit Singh College of Professional Sciences, Indore
 Department of Chemical Sciences
 Lesson Plan - M.Sc. - IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)
 Subject - Pharmacology
 Teacher - Prof. Deepika Choudhary

Day/Lecture	Unit	Topic
1	Unit 1	General Pharmacology: Dosage forms & Routes of Administration
2	Unit 1	General Pharmacology: Tolerance & Dependence
3	Unit 1	ADME of Drugs
4	Unit 1	Pathophysiology of CNS Diseases and Pharmacology of Drugs used to treat them:
5	Unit 1	Neurohumoral Transmission in CNS
6	Unit 1	(a) Cholinergic Pathways
7	Unit 1	(b) Dopaminergic Pathways
8	Unit 1	(c) Serotonergic Pathways
9	Unit 1	(d) Noradrenergic Pathways
10	Unit 1	(e) General Anesthetic
11	Unit 2	Psychopharmacological Agents : (a) Antipsychotics
12	Unit 2	(b) Antidepressants
13	Unit 2	(c) Antimaniacs
14	Unit 2	(d) Hallucinogens
15	Unit 3	Drugs acting on the Gastrointestinal Tract : Introduction
16	Unit 3	(a) Antacids, Anti-Ulcer Drugs
17	Unit 3	(b) Laxatives and Anti- Diarrhoeal Drugs
18	Unit 3	(b) Laxatives and Anti- Diarrhoeal Drugs
19	Unit 3	(c) Emetics and Anti-emetics
20	Unit 3	(c) Emetics and Anti-emetics
21	Unit 4	Drugs acting on the Haematopoietic system: (a) Hematinics
22	Unit 4	(b) Anti-coagulants, Vitamin K and Hemostatic Agents
23	Unit 4	(c) Fibrinolytic and Anti-platelet Drugs
24	Unit 4	(d) Blood and Plasma Volume Expanders
25	Unit 5	Autocoids : Introduction
26	Unit 5	(a) Antihistamines- Histamine H ₁ -receptors and their Antagonists
27	Unit 5	(b) Eicosanoids - Prostaglandins
28	Unit 5	(b) Eicosanoids : Leukotrienes
29	Unit 5	(b) Eicosanoids : Thromboxane
30	Unit 5	(c) Anti-inflammatory agents
31	Unit 5	(c) Opioid Analgesics
32	Unit 5	(c) Antipyretics

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Pharmaceutical practical Lab-course-I

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Determination of Sulphate by Nephelometric method
2		Determination of end point of strong acid Vs strong base by conductometric method
3		Determination of end point of strong acid Vs weak base by conductometric method
4		Determination of end point of weak acid Vs strong base by conductometric method
5		Determination of end point of weak acid Vs weak base by conductometric method
6		Determination the pH of a number of Buffer solutions using pH meter
7		Karl Fisher method for Determination of Water in Pharmaceutical
8		Preparation of Sodium Ferroxylate $\text{Na}_3\text{Fe}(\text{C}_2\text{O}_4)_3 \cdot 9\text{H}_2\text{O}$
9		Preparation of ortho-chloro Benzoic acid from Phthalic Anhydride
10		Preparation of para Nitroaniline from Aniline
11		Preparation of Acridon from Anthranilic acid
12		To study Central Muscle relaxants using Rotardo Apparatus
13		To study the Hyprotic Activity of Sedaatives
14		To study the Analgesic Activity of Opioid Analgesic on Mice

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - M.Sc. IV Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Pharmaceutical practical Lab-course-II

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Separate and estimate Mg(II) and Fe (III) by solvent Extraction Method
2		Determination of Following Parameters in the given sample of water colour,Oder,pH,DO
3		Determination of Following Parameters in the given sample of water Turbidity,Acidity,BOD
4		Determination of Following Parameters in the given sample of water electrical conductivity
5		Determination of Following Parameters in the given sample of water Alkalinity,Hardness
6		Determination of Following Parameters in the given sample of water Total Solids,TDS,COD
7		Determination of Following Parameters in the given sample of water Total suspended solids
8		Preparation of Camphor Liniment
9		Preparation of after save lotion
10		Preparation of Simple Shampoo
11		Preparation of Compact powder
12		Preparation of Cleansing cream
13		Preparation of Calamine Lotion
14		Preparation of Iodex
15		Preparation of Benzyl Benzoate
16		Preparation of Paste