Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Biosciences

Lesson Plan - B. Sc. I Year Pharmaceutical Chemistry (July 2017 - June 2018)

Subject:Pharmaceutical Organic Chemistry (Paper -I)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	**Unit 1**	Historical development of Pharmaceutical chemistry ,
2		Atomic and molecular orbital
3		Covalent bond, inter molecular forces,
4		hybrid orbital, Bond dissociation energy(homolysis and heterolysis)
5		Polarity of bonds and molecules,structure and physical properties
6		Resonance
7		hyperconjuction,
8		hydrogen bonding,introduction,types,
9		effect of hydrogen bonding
10		Inductive effect, field effect
11		Acids and bases, arrhenius concept
12		Bronsted-Lowry concept,
13		strength of acids and bases, Lewis concept,
14		Bond dissociation energy
15		pH,pKa,pKb Values,
16		buffers,buffers in pharmaceutical
17		buffers in biological system,Buffered isotonic solution
18	**Unit 2**	Physicochemical properties and molecular constitution,
19		surface and interfacial tention
20		refractive index,optical rotation
21		dielectric constant
22		dipole moment,density,Viscosity
23		molar refraction and parachor,
24		stereo isomerism,
25		Optical isomerism-optical activity
26		Optical isomerism-optical activity
27		enantiomerism,diastereoisomerism,
18		meso compounds
29		elements of symmentry
30		DL system of nomenclature of optical isomers
31		Chiral and achiral molecules
32		RS system of nomenclature of optical isomers,
33		Reaction of chiral molecules
34		sequence rule
35		Racemic modification and resolution of racemic mixture
36		Geometrical isomerism, nomenclature of geometrical isomers
37		Methods of determination of configuration of geometrical isomers
38	**Unit 3**	Types of organic reaction,
39		mechanism of organic reaction
40		electrophiles and nucleophiles
41		Curved arrow notation,drawing electron movement with arrow
42		Half headed and double headed arrow,
43		Reaction intermediates,formation ,structure,stability and rectivity of carbocation
44		Reaction intermediates,formation ,structure,stability and rectivity of carbocation
45		Reaction intermediates,formation ,structure,stability and rectivity of carboanion
46		Reaction intermediates,formation ,structure,stability and rectivity of carboanion
47		Reaction intermediates,formation ,structure,stability and rectivity of free radical
48		Reaction intermediates,formation ,structure,stability and rectivity of free radical
49		Nucleophilic aliphatic substitution
50		SN1 and SN2 reaction,mechanism
51		kinetics,order of reactivity and stereochemistry of nucleophile,Elimination reaction
52		Elimination reaction

53		E1 and E2 reaction,mechanism
54		kinetics,order of reactivity and stereochemistry of electrophile
55		kinetics,order of reactivity and stereochemistry of electrophile
60	**Unit 4**	Classification of drugs on the basis of biological sources
61		Classification of drugs on the basis of Geographical sources
62		Classification of druge on the basis of Marine and Minerals sources
63		Theories of drug action,biological defenses
64		Theories of drug action,chemical defenses
65		Surface active agents,metabolic antagonism
66		Enzyme neutralizers,drug receptor interactions and receptor theories
67		drug receptor interactions and receptor theories
68	**Unit 5**	Introduction to dosage forms,classification and definition
69		Rout of drug administration
70		Aromatic waters and syrups
71		Tinctures and infusion
72		Introduction to medicinal system,Ayurvedic,Unani,
73		Introduction to medicinal systemSiddha
74		Introduction to medicinal system,Homeopathic,Allopthic
75		Weight and measures,Imperial and metric system
76		Calculation involving percentage solutions,allegation
77		Proof sprit and isotonic solution based on freezing point and molecular weight

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Biosciences

Lesson Plan - B. Sc. I Year Pharmaceutical Chemistry (July 2017 - June 2018)

Subject:Inorganic Pharmaceutical analysis (Paper -II)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	**Unit 1**	Impurities in pharmaceutical substances.
2		history of pharmacopoeia
3		Sources and types of impurities
4		effect of impurities
5		Permissible impurities in pharmaceutical substances
6		Methods used to purify inorganic substances
7		Test of purity,introduction of limit test
8		Principle of limit test,limit test for chloride
9		Limit test for Sulphate,
10		Limit test for Iron
11		Limit test for Arsenic,
12		Limit test for Lead
13		Limit test for Heavy metals
14	**Unit 2**	Pharmaceutical analysis,
15		different techniques of analysis
16		Methods of expressing concentration
17		Primary and secondary standard solution,
18		preparation of solution
19		Prepration and standardization of various molar and normal solution
20		Oxalic acid,Sodium hydroxide,
21		hydrochloric acid,Sodium hydroxide,
22		SodiumsulphateSuphuric acid
23		potassium permanganate and ceric ammonium sulphate
24		Errors,sources of errors,types of errors
25		Methods of minimizing errors
26		Accuracy,precision and significant figures
27	**Unit 3**	Acid base titration,
28		theories of acid base titrtion
29		Classification of acid base titration and theory involved
30		titrtionin strong acid and strongbase,
31		titrationvery weak acid and base
32		titration weak acid and base
33		Neutralization curves
34		Non aqueous titration,solvents,
35		acidimetry and alkalimetry ttration
36		Estimation of sodium benzoate and Ephedrine HCl
37		Redox titration,
38		concept of oxdidation and reduction
39		Types of redox titration
40		Principle and application of Cerimetry, Iodimetry
41		Iodometry titration with potassium iodate
42	**Unit 4**	precipation titration,,
43		Mohr's method
44		Volhrd's method
45		sodium chlorideFajans method,estimation of
46		complexometric titration,classification
47		Metal ion indicators,
48		masking and demasking reagents
49		Estimation of Magnesium sulphate
50		Estimation of Calcium gluconate
51		Gravimetryanalysis
52		Principle,step involved in gravimetric analysis

53		Purity of precipatate,
54		co-precipitation and post precipitation
55		Estimation of barium sulphate
56		Basic principle,method and application of diazotisation titration
57	**Unit 5**	Preparation and uses of Alum
58		Preparation and uses of Aluminium hydroxide gel
59		Preparation and uses of Antimony potassium tartrate
60		Preparation and uses of Aromatic spirit of ammonia
61		Preparation and uses of boric acid
62		Preparation and uses of Potassium citrate
63		Praparation and uses of Sodium benzoate,
64		Praparation and uses ofmilk of Magnesia
65		preparation and uses of Magnesium carbonate,
66		preparation and uses ofZinc Oxide
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Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Biosciences

Lesson Plan - B. Sc. I Year Pharmaceutical Chemistry (July 2017 - June 2018)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Identification of elements and groups present in organic compounds
2		Identification of elements and groups present in organic compounds
3		Identification of elements and groups present in organic compounds
4		Identification of elements and groups present in organic compounds
5		Identification of elements and groups present in organic compounds
6		Determination of solubility of benzoic aqcid over a range of temperature
7		Determination of surface tention of the given liquids
8		Determination of Viscosity of the given liquids
9		Preparation of aromatic Waters
10		preparation of Syrup
11		Preparation of Tinctures
12		Preparation of buffer solutions and measurement of pH
13		Identification of the unknow compoundfrom the literature using MP/BP.
14		Limit test of chloride
15		Limit test of Sulphate
16		Limit test of Iron
17		Limit test of Lead
18		Preparation of inorganic pharmaceutical Alum
19		Preparation of inorganic pharmaceutical Aluminium hydroxide gel
20		Preparation of inorganic pharmaceutical milk of magnesia
21		Preparation of inorganic pharmaceutical ferrous ammonium sulphate
22		Preparation of inorganic pharmaceutical antimony potassium tartarte
23		Preparation and standardization of sodium hydroxide, Oxalic acid
24		Assay of Ammonium chloride
25		Assay of borax
26		Assay of Zinc Oxide
27		Assay of Sodium carbonate
28		Assay of Copper Sulphate by Iodometry
29		Volumetric estimation of ferrous sulphate using oxalic acid,
30		Potassium permanagnate and potassium dichromate.
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Department of Chemical Science

Lesson Plan - B.Sc. III sem (July 2017 - Dec 2017)

Subject - Pharmaceutical Chemistry Paper I (Medicinal Chemistry)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	Unit 1	General Anesthetics: Definition, Stages of Anesthesia
2		Classification and Theories of General Anesthetics
3		Mechanism of action of general anesthetics
4		Preparation,mode of action,therapeutic uses and adverse effect of thiopental sodium
5		Preparation,mode of action,therapeutic uses and adverse effect of thiopental sodium
6		Preparation,mode of action,therapeutic uses and adverse effect of Halothane
7		Preparation,mode of action,therapeutic uses and adverse effect of cyclopropane
8		local anesthetics introduction,definition
9		local anesthetics classification,theories (five theories)
10		mechainsm of action of local anesthetics
11		Preparation,mode of action,therapeutic uses and adverse effect of Procaine
12		Preparation,mode of action,therapeutic uses and adverse effect of Benzocaine
13		Preparation,mode of action,therapeutic uses and adverse effect of Lignocaine HCl
14		Preparation,mode of action,therapeutic uses and adverse effect of Lignocaine HCl
15		Preparation,mode of action,therapeutic uses and adverse effect of Diperodon HCl
16	Unit 2	Hypnotics and Sedatives introduction, examples
17		Definition and Classification of hypnotics and sedatives
18		Structure activity relationship of barbiturates
19		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Barbitone Sodium
20		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Barbitone Sodium
21		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Allobarbiton
22		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Allobarbiton
23		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Hexabarbitons
24		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Hexabarbitons
25		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Glutethimide
26		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Glutethimide
27		Tranquillizers: Definition, Classification,
28		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Chloropromazine Hcl,
29		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Chlordiazepoxide,
30		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Diazepam
31		Anticonvulsants: Definition, Classification,
32		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Phenobartital,
33		Preparation, Mode of action, Therapeutic uses and Adverse Effect of Phensuximide.
34	Unit 3	Antihypertensive: General Introduction, Causes and types of hypertension
35		Classification of antihypertensive, Mode of action of Calcium channel blockers
36		Preparation, Mode of action, Therapeutic uses and Adverse effect of Tolazoline Hcl,
37		Preparation, Mode of action, Therapeutic uses and Adverse effect of Propranolol HCl
38		Preparation, Mode of action, Therapeutic uses and Adverse effect of Methyl Dopa
39		Preparation, Mode of action, Therapeutic uses and Adverse effect of Guanithidine sulphate
40		Preparation, Mode of action, Therapeutic uses and Adverse effect of Guanithidine sulphate
41		Preparation, Mode of action, Therapeutic uses and Adverse effect of Captopril
42		Preparation, Mode of action, Therapeutic uses and Adverse effect of Captopril
43		Adrenergic Agents: Classification, Adrenergic harmone,
44		Structure Activity Relationship of Phenylethylamine analogs
45		Ephedrine
46		Pseudoephedrine HCl
47		Metarminol,
48		Naphazoline HCl
49		Cholinergics and Anticholinesterases
50		Preparation, Mode of action, Therapeutic uses and Adverse effect of Acetylcholine
51		Preparation, Mode of action, Therapeutic uses and Adverse effect of Carbachol,
52		Preparation, Mode of action, Therapeutic uses and Adverse effect of Edrophoniun
53		Preparation, Mode of action, Therapeutic uses and Adverse effect of Pyridostigmine

54	Unit 4	Non Steroidal Anti-Inflammatory Drugs : Definition, Types of Pain
55		Classification of NSAID
56		Structure Activity Relationship of Indole Acetic Acid derivatives
57		Structure Activity Relationship of Salicylic acid derivatives
58		Preparation, Mode of action, Therapeutic uses and adverse effect of Indomethacin,
59		Preparation, Mode of action, Therapeutic uses and adverse effect of Indomethacin,
60		Preparation, Mode of action, Therapeutic uses and adverse effect of Tolmetin Sodium
61		Preparation, Mode of action, Therapeutic uses and adverse effect of Tolmetin Sodium
62		Diuretics: Anatomy and Physiology of Kidney,
63		Mechanism of Urine Formation
64		Classification of Diuretics
65		Preparation, Mode of action, Therapeutic uses and adverse effect of Furosemide
66		Preparation, Mode of action, Therapeutic uses and adverse effect of Acetazolamide
67		Preparation, Mode of action, Therapeutic uses and adverse effect of Chlorthiamide
68		Preparation, Mode of action, Therapeutic uses and adverse effect of orthiamide.
69	Unit 5	Drugs Acting on Respiratory Systems, Expectorants and Antitussives
70		Classification and Mechanism of action
71		Potassium glucosulphate
72		Terpine hydrate
73		Noscopine.
74		Antiasthmatics Drugs : Classification,Causes of Asthma,
75		Preparation, Mode of action, Therapeutic uses and adverse effect of Salbutamol,
76		Preparation, Mode of action, Therapeutic uses and adverse effect of Terbutaline.
77		Autocoids ; Histaminics and Antihistaminics
78		Chemistry of histamine
79		Pharmacological action of histamines
80		Classification of Antihistaminics,
81		Structure Activity Relationship of Ethanolamine derivatives
82		Structure Activity Relationship Mepyramine
83		Structure Activity Relationship Pheniramine maleate

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - B.Sc. III Sem (July2017-Dec-2017)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Preparation of Organic Compounds Phenyl Benzoate
2		Preparation of Organic Compounds 1-Phenyl Azo-□-naphthol
3		Preparation of Organic Compounds Phthalimide
4		Preparation of Organic Compounds Benzanilide
5		Preparation of Organic Compounds Hippuric acid
6		Preparation of Organic Compounds Naphthyl acetate
7		Preparation of Organic Compounds Succinic anhydride
8		Preparation of Organic Compounds Di-azo-amino benzene
9		Preparation of Organic Compounds 2,4-Dinitro toluene
10		Preparation of Organic Compounds 2,4,6-Tribromo aniline
11		Preparation of Organic Compounds p-acetanisidide.
12		Isolation of Starch from potatoes
13		Isolation of Hippuric from Cow's urine
14		Isolation of Calcium citrate from Lemon juice.
15		Isolation of Solanin from Potatoes
16		Identification of Plant Products
17		Identification of Drugs

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Science

Lesson Plan - B.Sc. IV sem (Jan 2018 -June 2018)

Subject - Pharmaceutical Chemistry Paper II (Chemistry of Natural Products)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	**Unit 1**	Heterocyclic Compounds: Nomenclature
2		Structural formula and chemistry of Imidazoles
3		Structural formula and chemistry of Oxazoles
4		Structural formula and chemistry of Pyrazoles,
5		Structural formula and chemistry of Pyran,
6		Structural formula and chemistry of Pyrimidine,
7		Structural formula and chemistry of Indole
8		Structural formula and chemistry of Isoquinoline
9		Structural formula and chemistry of Isoquinoline
10		Terpenes: Isolation
11		Classification of Terpenes
12		General methods of determining structure with refernces to Citral
13		General methods of determining structure with refernces to Terpineol,
14		General methods of determining structure with refernces to Carvone, Menthol
15		General methods of determining structure with refernces to Camphor.
16		General methods of determining structure with refernces to Camphor.
17	**Unit 2**	Carbohydrates: Classification of Carbohydrates
18		Monosaccharides : Glucose, Fructose and their reactions
19		Monosaccharides : Glucose, Fructose and their reactions
20		Monosaccharides : Glucose, Fructose and their reactions
21		Cyclic structure of D-glucose, Mutarotation.
22		Diasaccharides:Maltose, Lactose, Sucrose
23		Diasaccharides:Maltose, Lactose, Sucrose
24		Diasaccharides:Maltose, Lactose, Sucrose
25		Diasaccharides:Maltose, Lactose, Sucrose
26		Polysaccharides : Starch, Cellulose
27		Polysaccharides : Starch, Cellulose
28		Polysaccharides : Starch, Cellulose
29		Glycosides: Classification,
30		Chemistry of Salicin
31		Chemistry of Arbutin
32		Chemistry of Amygdalin
33		Chemistry of Sinigrin
34		Chemistry of hraquinone glycodsides
35		Chemistry of Tannin
36		Chemistry of Cardiac glucosides
37		Chemistry of Saportins.
38	**Unit 3**	Alkaloids : Classification.
39		General methods of determining structure of an Alkaloid
40		General methods of determining structure of an Alkaloid
41		A general study of structure of Quinine
42		A general study of structure of Morphine,
43		A general study of structure of Reserpine
44		A general study of structure of Atropine
45		Purines : Uric acid
46		Caeffine
47		Theobromine
48		Theophylline
49	**Unit 4**	Proteins and Amino Acids: Isolation and classification of protein
50		Proteins and Amino Acids: Isolation and classification of protein
51		**Proteins and Amino Acids**: Isolation and classification of protein
52		Hydrolysis of proteins

53		Fibrous and Globular proteins
54		Methods of synthesis
55		Properties and Classification of amino acids
56		Nucleoproteins, Nucleic acids
57		Lipids: Fats, Oils, Waxes, Fattyacids,
58		Physio-chemical properties
59		Phospholipids,
60		Lecithines
61		Cephalines
62		Plasmogens
63		Glycolipids
64	**Unit 5**	Polynuclear Aromatic Hydrocarbon
65		Chemistry of Naphthaline,
66		Chemistry of Anthracene
67		Chemistry of Phenanthracene.
68		Steroides : Isolation Nomenclature
69		Chemistry of Cholesterol
70		Chemistry of Ergosterol
71		Chemistry of Stigmnasterol

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - B.Sc. IV Sem (Jan 2018 - June 2018)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Assay of Ampicillin
2		Assay of Aspirin
3		Assay of Benzoic acid
4		Assay of Citric acid
5		Assay of Sodium Bicarbonate
6		Isolation of Casein from Milk
7		Isolation of Lactose from Milk
8		Isolation of Hesperdin from Orange peel
9		Isolation of Lycopene from Tomatoes
10		TLC of Drugs

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Science

Lesson Plan - B.Sc. V Sem Pharmaceutical Chemistry (July 2017 - Dec 2017)

Subject - Pharmaceutical Chemistry (Medicinal Chemistry)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	Unit 1	Drug Design and Drug Metabolism: Biotransformation,
2		Factors Affecting Drug Metabolism,
3		Pathway of Drug Metabolism- Phase-I and Conjugation Reaction
4		Pathway of Drug Metabolism- Phase-I and Conjugation Reaction
5		Pathway of Drug Metabolism- Phase-II and Conjugation Reaction
6		Pathway of Drug Metabolism- Phase-II and Conjugation Reaction
7		Significance of Drug Metabolism in Medicinal Chemistry
8		A general study of the Physio-Chemical properties in relation to biological activities
9		A general study of the Physio-Chemical properties in relation to biological activities
10		Stereochemistry and Drug action
11		Isosterism and Bioisosterism,
12		Concept of Lead Compound
13		Computer Aided Drug Design and Molecular Modeling
14		Computer Aided Drug Design and Molecular Modeling
15	Unit 2	Antibiotics: Introduction, Classification and uses of Penicillin
16		Semisynthetic Penicillins
17		Study of structures and uses of Streptomycin
18		Study of structures and uses of Neomycin
19		Study of structures and uses of Kanamycin
20		Study of structures and uses of Kanamycin
21		Tetracycline - SAR and uses
22		Antitubercular Drugs: Introduction,
23		Synthesis and Mode of action of PAS
24		Synthesis and Mode of action of INH
25		Synthesis and Mode of action of Ethambutol
26		Synthesis and Mode of action of Ethionamide.
27		Classification of Antibiotics
28		Macrolides, Aminoglycosides , Fluoroquinolones and broad-spectrum antibiotics
29		Macrolides, Aminoglycosides , Fluoroquinolones and broad-spectrum antibiotics
30		Macrolides, Aminoglycosides , Fluoroquinolones and broad-spectrum antibiotics
31	Unit3	Cardiovascular Drugs: Introduction, Classification of Cardiovascular Drugs
32		Cardiovascular Diseases
33		Synthesis, Mode of Action, Uses and Side Effects of Amyl Nitrate
34		Synthesis, Mode of Action, Uses and Side Effects of Amyl Nitrate
35		Synthesis, Mode of Action, Uses and Side Effects of Amyl Sorbitrate
36		Synthesis, Mode of Action, Uses and Side Effects of Amyl Sorbitrate
37		Synthesis, Mode of Action, Uses and Side Effects of Amyl Verapamil,
38		Synthesis, Mode of Action, Uses and Side Effects of Amyl Verapamil,
39		Synthesis, Mode of Action, Uses and Side Effects of Amyl Atenolol.
40		Synthesis, Mode of Action, Uses and Side Effects of Amyl Atenolol.
41		Drugs acting on cardiovascular system: Cardiac glycoside
42		Anti-Arrhythmic agents
43		Anti-Anginal drugs
44		Anti-Hypertensive
45		Anti-Hypertensive
46		Anti-Hyperlipidemic drugs
47	Unit 4	Antiviral: Introduction, Replication and Transformation
48		Classification of Antiviral drugs
49		Synthesis and Uses of Amantidine HCl
50		Synthesis and Uses of Amantidine HCl
51		Synthesis and Uses of Idoxuridine
52		Synthesis and Uses of Idoxuridine
53		Synthesis and Uses of Methisazone

54		Synthesis and Uses of Methisazone
55		Synthesis and Uses of Anti-HIV agents
56		Synthesis and Uses of Anti-HIV agents
57		Antimalarials: Classification
58		SAR of 4-Aminoquinolines
59		SAR of 8-Aminoquinolines
60		Synthesis, Mode of action and uses of Chloroquine
61		Synthesis, Mode of action and uses of Chloroquine
62		Synthesis, Mode of action and uses of Amidoquine
63		Synthesis, Mode of action and uses of Amidoquine
64		Synthesis, Mode of action and uses of Pamaquine,
65		Synthesis, Mode of action and uses of Pyrimethamine.
66		Synthesis, Mode of action and uses of Pyrimethamine.
67	Unit 5	Antineoplastic Agents: Classification,
68		Pathophysiology of cancer
69		Synthesis and Mode of action of 5-Flouroureacil
70		Synthesis and Mode of action of 5-Flouroureacil
71		Synthesis and Mode of action of 6-Thioguanine
72		Synthesis and Mode of action of 6-Thioguanine
73		Synthesis and Mode of action of Thiotepa
74		Synthesis and Mode of action of Melaphalan
75		Synthesis and Mode of action of Busulfan
76		Antiamoebics: Synthesis and uses of Biallyl Unical
77		Antiamoebics: Synthesis and uses of Metronidazole
78		Antiamoebics: Synthesis and uses of Metronidazole
79		Antiamoebics: Synthesis and uses of Mentamide
80		Antiamoebics: Synthesis and uses of Iodoquinol.

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Science

Lesson Plan - B.Sc. V Sem Pharmaceutical Chemistry (July 2017- Dec 2017)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1		Preparations and Synthesis of Vicks
2		Preparations and Synthesis of Eosin
3		Preparations and Synthesis of Cold Cream
4		Preparations and Synthesis of 7-Hydroxy-4-Methyl Coumarin.
5		Preparations and Synthesis of Sodium Chloride Injection
6		Assay of Lithium Carbonate.
7		Assay of Ammonium Chloride
8		Assay of Citric Acid
9		Analysis of Solid dosage forms by Instrumentation (i) Friability
10		Analysis of Solid dosage forms by Instrumentation (ii) Dissolution Time
11		Chromatography: TLC
12		Chromatography:Column Chromatography

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Science

Lesson Plan - B.Sc. VI Sem Pharmaceutical Chemistry (Jan 2018 - June 2018)

Subject - Pharmaceutical Chemistry (Drug analysis)

Teacher - Dr. Mukesh Gupta

Day/Lecture	Unit	Topic
1	Unit 1	Chromatography introduction ,types of Chromatography
2		Principles of Separation Processes and Application of Thin Layer Chromatography
3		Principles of Separation Processes and Application of Gas Chromatography
4		Principles of Separation Processes and Application of Paper Chromatography
5		Principles of Separation Processes and Application of Ion Exchange Chromatography
6		Principles of Separation Processes and Application of Ion Exchange Chromatography
7		Principles of Separation Processes and Application of HPLC
8		Principles of Separation Processes and Application of HPLC
9	Unit 2	Instrumental Techniques: Definition, Principles
10		Instrumentation
11		Pharmaceutical Applications of Amperometry
12		Pharmaceutical Applications of Nephelometry
13		Pharmaceutical Applications of Turbidimetry
14		Pharmaceutical Applications of Potentiometery
15		Pharmaceutical Applications of Conductometry
16		Pharmaceutical Applications of Polarography
17		Pharmaceutical Applications of Colorimetery
18	Unit 3	Spectroscopic Method
19		Principle, Instrumentation and Applications of NMR Spectroscopy
20		Principle, Instrumentation and Applications of NMR Spectroscopy
21		Principle, Instrumentation and Applications of Mass Spectroscopy
22		Principle, Instrumentation and Applications of Mass Spectroscopy
23		Principle, Instrumentation and Applications of UV-Vis Spectroscopy
24		Principle, Instrumentation and Applications of UV-Vis Spectroscopy
25		Principle, Instrumentation and Applications of UV-Vis Spectroscopy
26		Principle, Instrumentation and Applications of IR Spectroscopy
27		Principle, Instrumentation and Applications of IR Spectroscopy
28		Principle, Instrumentation and Applications of IR Spectroscopy
29	Unit 4	Statistical Validation: Errors: Introduction, Classification
30		Statistical Validation
31		Distribution of Random Numbers
32		Significant Figures
33		Comparison of Results
34		Methods of Least Square
35		Method of collection of data
36		Graphical representation of data
37		Frequency, polygon, histogram,
38		Measure of central tendency
39		Mean,median ,mode
40		Dispersion, standard deviation, variance
41	Unit 5	Methods for determination of purity of pharmaceutical compounds
42		Introduction,types of impurity
43		methods of checking purity
44		Volumetric and Gravimetric Assay Procedures of Compound Acetazolemide
45		Volumetric and Gravimetric Assay Procedures of Compound Adrenaline
46		Volumetric and Gravimetric Assay Procedures of Compound Amitryptaline
47		Volumetric and Gravimetric Assay Procedures of Compound Dichloride

48		Volumetric and Gravimetric Assay Procedures of Compound Amidoquine
49		Volumetric and Gravimetric Assay Procedures of Compound Chloquinephosphate
50		Volumetric and Gravimetric Assay Procedures of Compound Diazepam,
51		Volumetric and Gravimetric Assay Procedures of Compound Ethacrynic acid,
52		Volumetric and Gravimetric Assay Procedures of Compound Griseofulvin
53		Volumetric and Gravimetric Assay Procedures of Compound Hydrazine Hydrochloride
54		Volumetric and Gravimetric Assay Procedures of Compound Hydrazine Hydrochloride
55		Volumetric and Gravimetric Assay Procedures of Compound Isoniazid,
56		Volumetric and Gravimetric Assay Procedures of Compound Calcium Gluconate
57		Volumetric and Gravimetric Assay Procedures of Compound Calcium Gluconate
58		Volumetric and Gravimetric Assay Procedures of Compound Ferrous Fumarate
59		Volumetric and Gravimetric Assay Procedures of Compound Ferrous Fumarate

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Science

Lesson Plan - B.Sc. VI Sem Pharmaceutical Chemistry (Jan 2018 - June 2018)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

ay/Lectu	Unit	Topic
1		Preparations and Synthesis of Methyl Red.
2		Preparations and Synthesis of Benzil
3		Preparations and Synthesis of Benzoic Acid
4		Preparations and Synthesis of Dextrose Injection
5		Preparations and Synthesis of Calamine Lotion
6		Preparations and Synthesis of Vanishing Cream
7		Assay of Milk of Magnesia
8		Assay of Ascorbic Acid
9		Analysis of Solid dosage forms by Instrumentation (i) Weight Variation
10		Analysis of Solid dosage forms by Instrumentation (ii) Hardness.
11		Analysis of Solid dosage forms by Instrumentation (iii) Disintegration Time
12		Chromatography: (i) o and p - Nitro Aniline by TLC
13		Chromatography:(ii) Inorganic ions by Radial Chromatography