

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Biosciences

Lesson Plan - B. Sc. I Semester (July 2016 - Dec 2016)

Subject - Pharmaceutical Chemistry Paper- I**Teacher - Dr. Mukesh Gupta**

Day/Lecture	Unit	Topic
1	Unit 1	Introduction to Pharmaceutical Chemistry
2		Pharmacy and pharmaceutical chemistry as a career
3		Important aspects of pharmaceutical chemistry
4		Importance of chemistry in pharmacy
5		History of pharmacopoeia
6		Drug: Classification and Sources
7		Sources and uses of natural drug products
8		Biological (plants, animals and microbes),
9		Geographical, Marine and Mineral sources.
10	Unit 2	Drug Introduction to biological defenses
11		Theories of drug action
12		Surface active agents,
13		Metabolic antagonism
14		Enzyme neutralizers
15		Mechanism of drug action
16		Drug Receptors Introduction to drug receptors
17		Nature of drug receptors
18		Different bondings involved in drug-receptor interactions
19		Drug receptor theories
20	Unit 3	Drug Absorption Routes of Drug Administration
21		Absorption of Drugs and factors affecting Absorption
22		Absorption of Drugs and factors affecting Absorption
23		Physiology of Biomolecules
24		Physiological Functions of Carbohydrates
25		Lipids and Proteins
26		Digestion and biological oxidation of Carbohydrates
27		Digestion and biological oxidation of Carbohydrates
28		Fats and Proteins.
29	Unit 4	Medicinal System Different types of medicinal systems
30		Study of liquid solutions such as Aromatic waters
31		Study of liquid solutions such as Solutions and Lotions.
32		Extraction Methods
33		percolation,
34		maceration and infusion
35		Manufacturing procedure of crude extracts such as tinctures
36		Manufacturing procedure of crude extracts such as infusions.
37	Unit 5	Dispensing Pharmacy
38		System of weights and measures in pharmacy
39		Dilution and concentration of formulation.
40		Dilution and concentration of formulation.
41		Calculation by Alligation method
42		Alligation medial and Alligation alternate.
43		Pharmaceutical Dosage
44		Meaning of pharmaceutical Dose and Dosage Formulae,
45		Factors affecting Pharmaceutical Dose
46		Types of drug-drug antagonism

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Department of Biosciences

Lesson Plan - B. Sc. I Semester (July 2016 - Dec 2016)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Topic
1	Preparation of pharmaceutical compound Aspirin
2	Preparation of pharmaceutical compound Acetanilide
3	Preparation of pharmaceutical compound Chrome alum
4	Preparation of pharmaceutical compound Mohr's salt
5	Preparation of pharmaceutical compound Salicylic acid
6	Preparation of pharmaceutical compound Zinc oxide
7	Preparation of pharmaceutical compound p-bromoacetanilide
8	Preparation of pharmaceutical compound Anthraquinone from anthracene
9	Preparation of pharmaceutical compound reduction of nitro benzene
10	Volumetric estimation Acid-base titration strong acid with strong base
11	Volumetric estimation Acid-base titration weak acid with strong base
12	Volumetric estimation Acid-base titration weak base with weak acid
13	Paper chromatography separation of amino acids
14	Paper chromatography separation of plant pigments

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Department of Biosciences

Lesson Plan - B. Sc. II Semester (Jan 2017 - June 2017)

Subject - Pharmaceutical Chemistry - II**Teacher - Dr. Mukesh Gupta**

Day/Lecture	Unit	Topic
1	Unit 1	Impurities in Pharmaceutical Substances
2		Sources of impurities in pharmaceutical chemicals,
3		Effect of impurities,
4		Permissible impurities in pharmaceutical substances.
5		Purification of Pharmaceutical Substances
6		Methods used to purify Inorganic Substances,
7		Tests of purity
8		Limit test-Arsenic
9		Limit test-Lead
10		Limit test-Sulphate
11		Limit test-Iron
12		Limit test-Heavy metals
13	Unit 2	Volumetric Estimation Introduction to volumetric estimation
14		Conditions for Volumetric Estimation
15		Requirement and Advantages of volumetric analysis
16		Primary standard and secondary standard
17		Methods of expressing concentration in volumetric analysis and numerical based on it
18		Methods of expressing concentration in volumetric analysis and numerical based on it
19		Titration Methods Types of titration methods
20		Acid-base titrations
21		Non-aqueous titrations
22		Oxidation-Reduction titrations
23		Precipitation titrations
24		Complexometric titrations
25	Unit 3	Pharmaceutical Compounds I Preparation and uses of Alum,
26		Preparation and uses of Aluminium hydroxide gel
27		Preparation and uses of Antimony potassium tartarate
28		Preparation and uses of Antimony sodium tartarate injection
29		Preparation and uses of Ammoniated mercury
30		Preparation and uses of Sodiumantimony gluconate.
31		Preparation and uses of Ammonium chloride
32		Preparation and uses of Ammonium bicarbonate
33		Preparation and uses of Aromatic spirit of ammonia
34		Preparation and uses of Potassium iodide
35		Preparation and uses of Potassium permanganate
36		Preparation and uses of Chlorinated lime
37	Unit 4	Pharmaceutical Compounds - II Preparation, properties and uses of Boric acid
38		Preparation, properties and uses of Borax
39		Preparation, properties and uses of Plaster of paris
40		Preparation, properties and uses of Potassium citrate
41		Preparation, properties and uses of Magnesium containing antacids
42		Preparation, properties and uses of Dicalcium phosphate
43		Preparation, properties and uses of Sodium metaphosphate
44		Preparation, properties and uses of Zinc oxide
45		Preparation, properties and uses of Sodium benzoate
46		Preparation, properties and uses of Lunar caustic (silver nitrate)
47		Preparation, properties and uses of Sodium fluoride
48		Preparation, properties and uses of Potassium acetate,

49		Preparation, properties and uses of Zinc chloride
50	Unit 5	Colloidal System and Application Types of colloidal systems:
51		Emulsions, Gels,
52		Sols (Lyophobic and Lyophilic),
53		Preparation of Lyophobic sols, Multimolecular,
54		Macromolecular and Associated colloids
55		Protective action of Lyophilic colloids and Gold number
56		Properties of Colloidal Solutions: Physical, Mechanical, Optical and Electrical
57		Hardy Schulze law and Flocculation value
58		Pharmaceutical application of Colloids.

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Department of Biosciences

Lesson Plan - B. Sc. II Semester (Jan 2017 - June 2017)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	Topic
1	Medicated preparation:Aromatic waters
2	Medicated preparation Solutions
3	Medicated preparation Syrups
4	Medicated preparation Lotions
5	Medicated preparation Spirits
6	Medicated preparation Elixirs
7	Medicated preparation Liniments
8	Medicated preparation Glycerites
9	Medicated preparation Gargles
10	Medicated preparation Mouthwashes
11	Medicated preparation Inhalations
12	Medicated preparation Emulsions
13	Medicated preparation Suspensions
14	Medicated preparation Mucilages
15	Medicated preparation Jellies
16	Medicated preparation Infusions
17	Medicated preparation Decoctions
18	Medicated preparation Tinctures
19	Medicated preparation Milks and Magmas
20	Oxidation-Reduction titration: Estimation of Ferrous Sulphate in Mohr's salt using KMnO_4
21	Oxidation-Reduction titration: Estimation of Ferrous Sulphate in Mohr's salt using $\text{K}_2\text{Cr}_2\text{O}_7$
22	Saponification value of oil
23	Iodine value of oil

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Department of Chemical Science

Lesson Plan - B.Sc. III sem (July 2016 - Dec 2016)

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		mechanism 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 Dipiperdon 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 Chlorpromazine 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 Phenobarbital,
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 hormone,
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 Edrophonium
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		Noscapine.
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

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Department of Chemical Sciences

Lesson Plan - B.Sc. III Sem (July2016-Dec-2016)

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- α -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 2017 - June 2017)

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 references to Citral
13		General methods of determining structure with references to Terpeneol,
14		General methods of determining structure with references to Carvone, Menthol
15		General methods of determining structure with references to Camphor.
16		General methods of determining structure with references 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 hraqinone 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 Stigmasterol

Maharaja Ranjit Singh College of Professional Sciences, Indore

Department of Chemical Sciences

Lesson Plan - B.Sc. IV Sem (Jan 2017 - June 2017)

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 2016 - Dec 2016)
 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.

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Department of Chemical Science

Lesson Plan - B.Sc. V Sem Pharmaceutical Chemistry (July 2016- Dec 2016)

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 2017 - June 2017)
 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 Potentiometry
15		Pharmaceutical Applications of Conductometry
16		Pharmaceutical Applications of Polarography
17		Pharmaceutical Applications of Colorimetry
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 Acetazolamide
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

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Department of Chemical Science

Lesson Plan - B.Sc. VI Sem Pharmaceutical Chemistry (Jan 2017 - June 2017)

Subject - Pharmaceutical Chemistry Practical

Teacher - Dr. Mukesh Gupta

Day/Lecture	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