

A. GENERAL INFORMATION

Name of the Faculty : Ms.M.Tamilpriya & Ms.I. Narchonia (II Semester)

Department : PG Department of Chemistry

Programme : B.Sc., Chemistry

Programme Code : USC

Name of the Paper : Volumetric Analysis

Lecture Hours / Practical Hours : 3Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
		<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

C.PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 6Hrs, Assessment -3 Hrs Total - 6 Hrs	Volumetric Analysis - Basic Concepts Volumetric Analysis - Concentrations Units	28.09.2021 to 13.10.2021		3Hrs 3Hrs	
Unit II Content- 6Hrs, Assessment -3 Hrs Total - 6 Hrs	Estimation of Oxalic Acid Estimation of Hydrochloric acid Estimation of Sodium Carbonate Estimation of Ferrous Sulphate	08.11.2021 to 01.12.2021	-	3Hrs 3Hrs	-
Unit III Content- 6Hrs, Assessment -3 Hrs Total - 6 Hrs	Estimation of Calcium Estimation of Ferric ion - Internal Indicator Estimation of Ferric ion- External Indicator	21.02.2022 to 11.03.2022	-	3Hrs 3Hrs	
Unit IV Content- 6Hrs, Assessment -3 Hrs Total - 6 Hrs	Estimation of Potassium Permanganate Estimation of Copper Estimation of Magnesium	21.03.2022 to 06.04.2022		3hrs 3hrs	
Unit V Content- 6Hrs, Assessment -3 Hrs Total - 6 Hrs	Estimation of Calcium- EDTA Estimation of Total hardness Estimation of Saponification value of an oil	18.04.2022 to 05.05.2022		3hrs 3hrs	

D. ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	06.05.2022 to 10.05.2022



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : Miss R.MAHESWARI
Department : PG Department of Chemistry
Programme : B.Sc., Chemistry
Programme Code : USC
Name of the Paper : General Chemistry -II
Lecture Hours / Practical Hours : 5 Hrs / Week/ Lecture Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To understand the principles of bonding and theories of chemical bonding.• To understand the chemistry of S-block elements and metallurgy of zero group elements.• To understand the aromatic character of benzene type molecules and to learn the reaction mechanisms involved in haloalkanes and halobenzenes.	<ul style="list-style-type: none">• To understand about the properties of atoms, characteristics, effect of radiations and the significance of wave functions.• To learn the mechanism of Nucleophilic substitution and Elimination reactions	<ul style="list-style-type: none">• Chalk and Talk• Power Point• 3. e - Module

PLAN OF THE WORK

Unit/ Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 13 Hrs, Assessment -2 Hrs Total - 15Hrs	CHEMICAL BONDING Ionic bond - formation, variable electrovalency - Lattice energy, Born - Haber Cycle. Covalent bond - formation, variable covalency, maximum covalency, covalent character in ionic bond - Fajans Rule. Polarisation - partial ionic character of a covalent bond.VB theory, MO theory - Basic principles of bonding and antibonding orbitals, applications of MOT to H ₂ He ₂ , N ₂ & O ₂ - molecular orbital sequence, comparison of VB & MO Theories. Hybridisation - Formation of BeCl ₂ & BCl ₃ . VSEPR theory of simple inorganic molecules - BeCl ₂ , SiCl ₄ , PCl ₅ , SF ₆ , IF ₇ , XeF ₆ , BF ₃ & H ₂ O. Hydrogen bonding - Intermolecular & Intramolecular H ₂ - bonding and consequences.	21.2.202 2 to 11.3.202 2	 4hrs 4hrs 3hrs 2hrs		
Unit II Content- 13 Hrs, Assessment -2 Hrs Total - 15Hrs	CHEMISTRY OF s-BLOCK & ZERO GROUP ELEMENTS AND METALLURGY General characteristics of s-block elements comparative study of elements alkali metals and their hydroxides, oxides and halides, alkaline earth metals and their oxides, carbonates and sulphates. Diagonal relationship of Li & Mg, Be & Al, chemistry of NaOH, KI & Mg(NH ₄)PO ₄ . Metallurgy :Occurrence of metals - concentration of ores - froth floatation, magnetic separation, calcination, roasting, smelting, flux,	12.3.202 2 to 29.3.202 2	 4hrs 4hrs 3hrs 2hrs		

	aluminothermic process, purification of metals – electrolysis, zone refining, van Arkel de- Boer process. Zero group elements – position in the periodic table, occurrence, isolation, applications, compounds of Xe – XeF ₆				
Unit III Content- 13 Hrs, Assessment -2 Hrs Total - 15Hrs	CHEMISTRY OF BENZENE AND BENZENOID COMPOUNDS Aromaticity – Huckle’s rule - structure of benzene – Benzene-preparation, chemical properties and uses. Aromatic electrophilic substitution reactions and mechanism – Orientation and reactivity in substituted benzenes. Polynuclear aromatic hydrocarbons – Nomenclature, Naphthalene from coal tar and petroleum – Laboratory preparation, Structure of Naphthalene, Aromatic character, Physical properties, Chemical properties, Uses. Mechanism of Aromatic electrophilic substitution – Theory of orientation and reactivity. Anthracene, Phenanthrene from coal tar and petroleum, Laboratory preparation, Molecular Orbital structures, Aromatic Characters, Physical Properties, Chemical properties and uses. Preparation of biphenyls, Physical and Chemical properties and uses.	30.3.202 2 to 12.4.202 2	4hrs 4hrs 3hrs 2hrs		
Unit IV Content- 13 Hrs, Assessment -2 Hrs Total - 15Hrs	ALKYL AND ARYL HALOGENS Nomenclature of haloalkanes – structure - general preparations of haloalkanes - physical and chemical properties and uses. Nucleophilic aliphatic substitution reaction mechanisms (S _N 1 and S _N 2) –	13.4.202 2 to 9.5.2022			

	Stereochemical aspects. Halobenzenes:				
Unit V Content- 13 Hrs, Assessment -2 Hrs Total - 15Hrs	ATOMIC STRUCTURE AND BASIC QUANTUM MECHANICS Rutherford's and Bohr's model an atom- Bohr's theory and origin of hydrogen spectrum. Sommerfield's extension of Bohr's theory. Electromagnetic radiation- definitions for, ν and velocity. Dualism of light -Particle nature of radiation- black body radiation and Planck's quantum theory, photoelectric effect and Compton effect of matter. De Broglie hypothesis and Davisson and Germer experiment. Heisenberg's uncertainty principle. Schrodinger wave equation (Derivation not needed). Physical significance of and ψ^2 .	10.5.202 2 to 23.5.202 2	4hrs 4hrs 3hrs 2hrs		

D.ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (August) Monthly Test – Unit – II (September) CIA / Mid Semester – Unit-I ,II& III (first ½ portion)- 2 ½ Unit(October) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV & Unit-V- 2 ½ Units (November)
Assignment	Assignment I –Unit –I and Unit –II (September) Assignment II- Unit –III and Unit – IV (October) Two Mark Quiz Test - Unit I – Unit – V (October)
Quiz	Unit –V (October) Monthly once
Seminar	
Tutorial Ward Meeting	



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A. GENERAL INFORMATION

Name of the Faculty : Dr.J.BHUVANA & Ms.N.P.RUDRA SHOWDRI

Department : PG Department of Chemistry

Programme : B.Sc., Chemistry

Programme Code : USC

Name of the Paper : Semi micro Inorganic Qualitative Analysis

Lecture Hours / Practical Hours : 2 Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">• To learn the techniques of semimicro qualitative analysis of Inorganic Salt mixtures.• To become familiar with elimination of interfering acid radicals	<ul style="list-style-type: none">• On completion of the course the learner will be able.• Familiarize the test involving identification of Cations and Anions.• To know the techniques for elimination of acid radicals.	<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next

C. PLAN OF THE WORK

Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Analysis - IV	25.02.22		2 Hrs	
Analysis - IV	07.03.22		2 Hrs	
Analysis - IV	15.03.22		2 Hrs	
Analysis - V	31.03.22		2 Hrs	
	Analysis - V	28.04.22		2 Hrs

D. ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	04.05.2022 to 11.05.2022



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A. GENERAL INFORMATION

Name of the Faculty	:Dr.J.Bhuvana & Ms.M.Tamil Priya
Department	:PG Department of Chemistry
Programme	:B.Sc., Chemistry
Programme Code	: USC
Name of the Paper	: General Chemistry - IV
Lecture Hours / Practical Hours	: 5 Hrs / Week / Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To learn about the compounds of d-and f-block elements.• To study about preparation, properties and uses of organometallic compounds.• To know the chemical processes involved in the preparation, chemical conversion and application of alcohol, phenol and ethers.• To learn the thermodynamic principle and thermochemistry aspects.• To study about rate of chemical reaction and theories of reaction rates.	<ul style="list-style-type: none">• On completion of the course the learner will be able• To learn about the compounds of d and f-block elements.• To acquire the Knowledge of preparation, properties and uses of Organometallic compounds.• To know the chemical processes involved in the preparation of alcohols and ethers.• To learn the thermodynamic principles and thermochemistry aspects.• To gain knowledge about the rate of chemical reaction and its theory.	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 13 Hrs, Assessment -3 Hrs Total - 15 Hrs	General characteristics of d-block elements, comparative study of zinc group elements. Extraction of Mo and Pt – Alloys of copper, amalgams and galvanization. Evidences for the existence of Hg^{2+} ions General characteristics of f-block elements – Lanthanides Electronic configuration – oxidation states – ionic radii, lanthanide contraction. Colour and magnetic properties. Actinides Sources of actinides– preparation of transuranic elements–electronic configuration–oxidation states–ionic radii–colour of ions – comparison with lanthanides. Extraction of thorium from monazite sand. Production and uses of plutonium.	24.02.22 to 09.03.22	2 Hrs 2 Hrs 2 Hrs 3Hrs 2 Hrs	-	-
Unit II Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs	Introduction–Preparation of organo magnesium compounds–physical and chemical properties – uses. Organo zinc compounds, Organo lead – general preparation, properties and uses. Organo lithium, Organo copper compound Preparation, properties and uses. Organo phosphorous and organo boron compounds–Preparation, properties and uses.	10.03.22 to 25.03.22	2 Hrs 2 Hrs 2 Hrs 2 Hrs 3Hrs 2 Hrs	-	-
Unit III Content- 12 Hrs, Assessment -3 Hrs Total – 15 Hrs	Nomenclature – Individual source of alcohols – Preparation of alcohols: hydration of alkenes, oxymercuration, hydroboration, Grignard addition, reduction Physical, chemical properties and uses- Glycols from dihydroxylation, reduction, substitution reactions and glycerols and their uses.	28.03.22 to 13.04.22	2 Hrs 2 Hrs		

	<p>Preparation of Phenols including di- and trihydroxy phenols – Physical and chemical properties–uses-Aromatic electrophilic substitution mechanism–theory of orientation and reactivity.</p> <p>Preparation of ethers: dehydration of alcohols, Williamsons synthesis – silyl ether, epoxide from per acids – Sharpless asymmetric epoxidation – reactions of epoxides –uses Introduction to crown ethers–structures –applications.</p>		<p>2 Hrs</p> <p>2 Hrs</p> <p>3Hrs</p> <p>2 Hrs</p>	-	-
<p>Unit IV Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs</p>	<p>Definitions – System and Surround – isolated, closed and open system – state of the system- intensive and extensive variables. Thermodynamic processes – reversible and irreversible, isothermal and adiabatic processes– state and path functions. Work of expansion at constant pressure and at constant volume, First law of thermodynamics – statement–definition of internal energy (E), enthalpy (H) and heat capacity. Relationship between Cp and Cv.</p> <p>Calculation of w, q, dE and dH for expansion of ideal and real gases under isothermal and adiabatic conditions of reversible and irreversible processes.</p> <p>Thermo chemistry – relationship between enthalpy of reaction at constant volume(qv) and at constant pressure (qp) – temperature dependence of heat of reaction Kirchoff's equation – bond energy and its calculation from thermo chemical data-integral and differential heats of solutions and dilution.</p>	<p>27.04.22 to 10.05.22</p>	<p>2 Hrs</p> <p>2 Hrs</p> <p>2 Hrs</p> <p>2 Hrs</p> <p>3Hrs</p> <p>2 Hrs</p>	-	-

Unit V Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs	Rate of reaction -rate equation, order and molecularity of reaction. Rate laws – rate constants–derivation of first order rate constant and characteristics of zero order,first order and second order reaction – derivations of time for half change ($t_{1/2}$) with examples. Methods of determination of order of- Lindemann’s theory of unimolecular reaction. Theory of absolute reaction rate – derivation of rate constant for a bimolecular reaction – significance of entropy and free energy of activation. Comparison of collision theory and Absolute Reaction Rate Theory (ARRT).	11.05.22 to 23.05.22	2 Hrs		
			2 Hrs		
			2 Hrs	-	-
			2 Hrs		
			3Hrs		
			2 Hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (March) Monthly Test – Unit – II (April) CIA / Mid Semester – Unit-I ,II& III (first ½ portion)- 2 ½ Unit(April) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV & Unit-V- 2 ½ Units (May)
Assignment	Assignment I –Unit –I and Unit –II (April) Assignment II- Unit –III and Unit – IV (May)
Quiz	Two Mark Quiz Test - Unit I – Unit – V (May)
Seminar	Unit –V (May)
Tutorial Ward Meeting	Monthly once

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A. GENERAL INFORMATION

Name of the Faculty : M.Sivagamasundari
Department : PG Department of Chemistry
Programme : B.Sc Chemistry
Programme Code : USC
Name of the Paper : Pharmaceutical Chemistry
Lecture Hours / Practical Hours :90 Hrs

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">To understand the various theories of coordination chemistryTo study the natural products and polymersTo learn about chromatography	<ul style="list-style-type: none">To know the terminology in Pharmaceutical chemistry.To understand the assay of drugs, administration of drugs.	<ul style="list-style-type: none">Chalk and TalkPower point.e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 4 Hrs, Assessment 2 - Hrs Total - 6 Hrs	INTRODUCTION		1 hr		
	Common diseases- infective	07.02.2022	1 hr		
	diseases-insect-borne, and water-borne hereditary diseases.	to			
	Terminology drug, pharmacology, pharmacognosy, pharmacodynamics, pharmacokinetics, and metabolic.	03.03.2022	1hr		
	Absorption of drugs-routes of administration of drugs, factors affecting absorption-Assay of drugs -chemical, biological, immunological assays.		1hr	-	-

Unit II Content- 4 Hrs, Assessment 2 - Hrs Total – 6 Hrs	DRUGS 1.Various sources of drugs, pharmacologically active constituents in plants. 2. Indian medicinal plants – tulsi ,neem ,keezhanelli– their importance. 3.Classification of drugs–biological chemical–mechanism of drug action–action at cellular and extra cellular sites.	05.03.2022 to 08.04.2022	1 hr 1 hr 1hr 1hr		
Unit III Content- 4 Hrs, Assessment 2 - Hrs Total – 6 Hrs	CHEMOTHERAPY 1.Designation of drugs based on physiological action , definition and two examples each of Anesthetics General IV and local – Analgesics – Narcotic and synthetic analgesics 2.Antipyretic and anti inflammatory agents – Antibiotics – penicillin , streptomycin, chloramphenicol, tetracyclines – Antivirals . 3.AIDS – symptoms ,.	10.04.2022 to 25.04.2022	1 hr 1 hr 1hr 1hr		
Unit IV Content- 4 Hrs, Assessment 2 - Hrs Total – 6 Hrs	COMMON BODY AILMENTS 1.Diabetes – causes , hyper and hypoglycemic drugs. Blood pressure – Sistolie& Diastolic Hypertensive drugs – Cardiovascular drugs – antiarrhythmic antianginals vasodilators. 2.CNS depressants and stimulants – Psychedelic drugs ,hypnotics sedatives (barbiturates LSD).	27.04.2022 to 10.05.2022	1 hr 1 hr 1hr 1hr		
Unit V Content- 4 Hrs,	HEALTH PROMOTING DRUGS 1.Nutrients – Vitamins A, B, C, D, E		1 hr 1 hr		

Assessment 2 - Hrs Total – 6 Hrs	and K. Micronutrients Na, K, Ca, Cu, Zn and I – Medically important inorganic compounds of Al P AS Hg Fe- L examples each their role and application. 2.Organic pharmaceutical acids , Agents for pituitary function (metyrapone) – Organic pharmaceutical bases – antioxidants .	11.5.2022 to 18.05.2022	1hr 1hr		
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C. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (January) CIA / Mid Semester – Unit-I,II(1/2 Unit) & IV (February)
Assignment	CIA / Model Examination -Unit-II(second 1/2 Unit), Unit III & Unit-V- 2 ½ Assignment I –Unit –I& II (February)
Quiz	Two Mark Quiz Test - Unit I
Seminar	
Tutorial Ward Meeting	Monthly once

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A. GENERAL INFORMATION

Name of the Faculty : Ms.N.P.RUDRA SHOWDRI
Department : PG Department of Chemistry
Programme : BSc Zoology/ Biochemistry/ Geology
Programme Code : VMF
Name of the Paper : NME- Food Science
Lecture Hours / Practical Hours : 2 Hrs / Week / Lecture Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To learn the importance of food and nutritional care• To study the biological functions of food• To understand the constituents of food	<p>On completion of the Course, Students should be able to</p> <ul style="list-style-type: none">• To acquire knowledge about adulteration in food.• To understand health problems due to food adulterants	<ul style="list-style-type: none">• Chalk and Talk• Power point.

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 4 Hrs, Assessment -2 Hrs Total - 6 Hrs	FOOD NUTRITION .Food, Nutrition and Health Nutritional care and health. Nutritional problems in India.	02.03.2022 to 06.03.2022	2 hrs 1hr 1hr		

Unit II Content- 4 Hrs, Assessment -2 Hrs Total - 6 Hrs	BIOLOGICAL IMPORTANCE. Biological importance of food. Nutritional classification of food – nutrients as body constituents – digestion and absorption of food, caloric content and dieting.	18.03.2022 To 22.03.2022	2hrs 2hrs	-	-
Unit III Content- 4 Hrs, Assessment -2 Hrs Total - 6 Hrs	CONSTITUENT OF FOOD Biological functions of carbohydrates, proteins, fats Vitamins, minerals and water.	05.04.2022 to 10.04.2022	2hrs 2hrs		
Unit IV Content- 4 Hrs, Assessment -2 Hrs Total - 6 Hrs	FOOD ADULTERATION Food adulterants test and common adulterants in food 2.Testing methods of all food adulterants.	12.04.2022 to 13.04.2022	2hrs 2hrs		
Unit V Content- 4 Hrs, Assessment -2 Hrs Total - 6 Hrs	HEALTH EFFECTS Health Problems of food adulteration 2.Principal adulterants and their health effects	07.05.2022 to 10.05.2022	1hr 1hr		

D.ACTICITIES

Test	Monthly Test- Unit-I (March) CIA / Mid Semester – Unit-I ,II(1/2 Unit) & IV (March) CIA / Model Examination -Unit-II(second 1/2 Unit), Unit III & Unit-V- 2 ½ Units (April) Assignment I –Unit –I (March) Assignment II- Unit –I and Unit – II (April)
Assignment	Two Mark Quiz Test - Unit III – Unit – IV (April)
Quiz	Monthly once
Seminar	
Tutorial Ward	
Meeting	



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	:Dr.J.Bhuvana
Department	:PG Department of Chemistry
Programme	:B.Sc.,Chemistry
Programme Code	: USC
Name of the Paper	: Organic Chemistry
Lecture Hours / Practical Hours	:6 Hrs / Week / Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Students learn the Chemistry of Sugars.• Students learn the Chemistry of Amino acids, Nucleic acids and Vitamins.• Students study the Chemistry of Alkaloid and Terpenoid.• Students learn the molecular rearrangement and its mechanism.• Students learn the basic concept of UV-Visible , IR and NMR spectroscopy	<ul style="list-style-type: none">• On completion of the course the learner will be able to know• The classification, properties, structure and configuration of mono, di and polysaccharides• The chemistry of proteins and vitamins.• The importance of alkaloids and terpenoids.• Predicting the molecular rearrangements with its types and mechanism• The fundamental principles of UV-Vis, IR and NMR spectroscopy	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment -3 Hrs Total - 18 Hrs	Carbohydrate-classification, properties of mono saccharides (Structure and configuration of mono saccharides, inter conversion Ascending and descending series, mutarotation, epimerization Cyclicstructure-termination of size of sugar rings. Disaccharides-sucrose, maltose-structure elucidation Polysaccharide-starch and cellulose (elementary treatment)	22.02.22 to 14.03.22	3 Hrs 2 Hrs 3 Hrs 2 Hrs 3 Hrs 2 Hrs	-	-
Unit II Content- 15 Hrs, Assessment -3 Hrs Total - 18 Hrs	Amino acids- Zwitter ion- isoelectric point – general methods of preparation and reactions of amino acids.Peptides- Peptide linkages- proteins-classification of proteins. Structure of proteins - primary structure-end group analysis-Edman method-secondary structure-tertiary structure-denaturation- Colour reactions of proteins Nucleic acids-elementary treatment of DNA and RNA Vitamins-classification, structure and biological importance of vitamins A, B1, B2, B6 ,B12 and C.	18.03.22 to 01.04.22	3 Hrs 2 Hrs 3 Hrs 2 Hrs 2 Hrs 3 Hrs	-	-
Unit III Content- 15 Hrs, Assessment -3 Hrs Total – 18 Hrs	Chemistry of natural products-alkaloids-classification, isolation methods Synthesis of conine and piperine Synthesis of nicotine and quinine Terpenoids-classification-isoprene, special isoprene rule	05.04.22 to 13.04.22	2 Hrs 3 Hrs 3 Hrs	-	-

	Methods for synthesis of citral and limonene Methods for synthesis of menthol and camphor		1 Hr 3 Hrs 3 Hrs		
Unit IV Content- 15 Hrs, Assessment -3 Hrs Total - 18 Hrs	Molecular rearrangements-types of rearrangement (nucleophilic and electrophilic) Mechanism with evidence for the following re-arrangements: pinacol-pinacolone, Benzil-benzilic acid, Benzidine, Claisen re-arrangements Fries, Hofmann re-arrangements Curtius, Lossen re-arrangements Beckmann and dienone-phenol rearrangements	27.04.22 to 10.05.22	2 Hrs 3 Hrs 3 Hrs 3 Hrs 2 Hrs 2 Hrs	-	-
Unit V Content- 15 Hrs, Assessment -3 Hrs Total - 18 Hrs	UV - VIS spectroscopy - types of electronic transitions - instrumentation- solvent effects on λ_{max} Woodward-Fieser rules for calculation of λ_{max} : dienes only- batho chromic shift and hypso chromic shift IR spectroscopy - number and types of fundamental vibrations - selection rules-modes of vibrations and their energies. Instrumentation-position of IR absorption frequencies for functional groups like aldehyde, ketone, alcohol, acid, amine and amide. NMR spectroscopy - Principle-chemical shift-factors affecting the chemical shift- inductive effect and hydrogen bonding - TMS, delta scales Splitting of signals -spin-spin coupling, NMR spectrum of	11.05.22 to 23.05.22	3 Hrs 3 Hrs 3 Hrs 2 Hrs 2 Hrs 2 Hrs	-	-

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D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (March) Monthly Test - Unit - II (April) CIA / Mid Semester - Unit-I, II & III (first ½ portion)- 2 ½ Unit(April) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV & Unit-V- 2 ½ Units (May)
Assignment	Assignment I -Unit -I and Unit -II (April) Assignment II- Unit -III and Unit - IV (May)
Quiz	Two Mark Quiz Test - Unit I - Unit - V (May)
Seminar	Unit -V (May)
Tutorial Ward Meeting	Monthly once

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A. GENERAL INFORMATION

Name of the Faculty	: Dr. N. Prabha
Department	: Chemistry
Programme	: B.Sc
Programme Code	: BQL
Name of the Paper	: Physical Chemistry – II
Lecture Hours / Practical Hours	:6 Hrs / Week/Lecture Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Students learn the basics of electrochemistry and they understand the practical use of electricity and their laws.• Students understand the nature of electrolytes and their theories and the concept of emf and its application.• Students learn the concept of electrochemical cell and its applications and the concept of ionic mobility and its practical applications.• Students learn about types and mechanism of catalysis and absorption reactions.• Students understand the effect of radiation on humans and they learn the basics of spectroscopy.• Students learn about concepts of NMR Spectroscopy.	<ul style="list-style-type: none">• Knowledge of electrical conductance with its applications• Learn depth about electrochemical cells and electrodes.• The applications of catalysis and isotherms• The use of UV spectroscopy and applications of IR and UV in chemical compounds.• The fundamental application of Raman and NMR spectroscopy.	<ol style="list-style-type: none">1. Chalk and Talk2. Power point.3. e- Module

PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Electrochemistry – Introduction, Electrical transport and ohm’s law, conduction in metals and in electrolyte solution.	21.02.2022 to 16.03.2022	3 hrs		
	Specific conductance and equivalent conductance.		2 hrs	-	
	2.Measurement of equivalent conductance using kohlrusch’s bridge. Variation of equivalent conductance with concentration.Migration of ions-kohlrausch’s law and its applications.		3 hrs		
	3. Arrhenius theory of electrolytic dissociation and its limitations. Weak and strong electrolytic according to arrhenius theory. Ostwald’s dilution law, its uses and limitations.		3hr		
	4.Debye-Huckel Onsager equation for strong electrolytes. Evidence for ionic atmosphere. The conductance at high fields (Wien effect) and high frequencies (Debye-Falkenhagen effect).		2hrs		
5.Transport number and Hittorf’s rule-determination					

	by Hittorf's method and moving boundary method. 6. Conductometric titrations				
Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Electrolytic and galvanic cells, Reversible and irreversible cells. Conventional representation of Electrochemical cells. Electromotive force of a cell and its measurements. 2. Applications of Gibbs Helmholtz equation, concentration and E.M.F. Nernst equation. 3. Types of reversible electrodes – Gas/metal ion, metal/metal ion, metal/insoluble salt/anion and Redox electrodes. Electrode reactions. Nernst equation-derivation of cell E.M.F. and single electrode potentials. 4. Standard hydrogen electrode – reference electrodes – standard electrode potentials – Electrochemical series and its significance. 5. Potentiometric titrations- Acid – Base titrations- Oxidation-reduction (Redox) titrations- Precipitation titrations.	17.03.2022 to 11.04.2022	3hrs 2hrs 3hrs 3hrs 2hrs 2hrs	-	-

	Corrosion-general and electrochemical theory-passivity- prevention of corrosion.				
Unit III Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Catalyst-Definition and Characteristics-Types of catalysis- Homogeneous and heterogeneous, induced, auto,positive and negative catalysis, catalytic poisons and catalytic promoters. Enzyme catalysis- Michaelis- menten equation and Michaelis – menten law. Adsorption-types-chemical and physical, characteristics of adsorption theory. Different types of isotherms- Freundlich and Langmuir adsorption isotherms.	12.04.2022 to 25.04.2022	2hrs 2hrs 2hrs 2hrs	-	-
Unit IV Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1.Spectroscopy – Introduction, Definition of spectrum. Electromagnetic radiation, interaction of electromagnetic radiation with molecules and quantisation of different forms of energies in molecules. (Translational, rotational, vibrational and electronic). 2. Microwave spectroscopy – condition – molecular	26.04.2022 to 18.05.2022	3hrs 3hrs 3hrs	-	-

	<p>rotation-theory of microwave spectroscopy-selection rule. Effect of isotopic substitution and calculation of moment of inertia and bond length of diatomic molecules.</p> <p>3. Infra red spectroscopy – condition – molecular vibration – modes of vibration of linear and non-linear molecules, modes of vibration of diatomic, triatomic linear (CO₂) & non-linear triatomic (H₂O) molecular-stretching & bending vibrations selection rules.</p> <p>4. Expression for vibrational frequency (derivation not needed). Calculation of force constant – isotope effect – applications of I.R. spectra (group frequencies, finger printing, and Hydrogen bonding only).</p> <p>5. U.V.Visible spectroscopy – Introduction, condition – theory of electronic spectroscopy – 6Types of electronic transitions – Frank – condon principle – predissociation – applications.Raman Spectroscopy – Raleigh and</p>		<p>2hrs</p> <p>2hrs</p> <p>2hrs</p>		
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Unit V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Raman scattering – stock and antistocklines .	19.05.2022 to 11.06.2022	3hrs		
	2. Differences between Raman and IR spectroscopy – mutual exclusion principle – Application.		2hrs		
	3. N.M.R. Spectroscopy – Introduction, magnetic and non-magnetic nuclei – condition principle of nuclear magnetic resonance.		2hrs	-	-
	4. Ring current effect – shielding mechanism – chemical shift. 5. Number of signals – spin – spin. Coupling – coupling constant (J) – splitting of signals.		3hrs		
	6. NMR spectra of simple organic compounds. NMR spectrum of ethylalcohol in detail.		3hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (March) CIA / Mid Semester – Unit-I,II - 2 Unit (April) CIA / Model Examination -Unit-III , Unit IV & Unit-V- 3Units (June)
Assignment	Assignment I –Unit –I & II (April) Assignment II– Unit –III to Unit – V (May)
Quiz	Two Mark Quiz Test - Unit I – Unit – V (May)
Seminar	Unit –V (May)
Tutorial Ward Meeting	Monthly once



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A. GENERAL INFORMATION

Name of the Faculty	: Dr.N.Prabha& M.Sivagamasundari
Department	:PG Department of Chemistry
Programme	: B.Sc., Chemistry
Programme Code	: USC
Name of the Paper	: Gravimetric & Organic Analysis Practical
Lecture Hours / Practical Hours	: 6Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">• Students learn the techniques of gravimetric analysis.• Students learn the methods of preparing organic compounds.• Students learn the determination of physical constants of compounds.• Students learn the techniques of organic qualitative analysis• Students learn the derivatives of organic qualitative analysis.	<ul style="list-style-type: none">• To know the technique of organic qualitative analysis.• To learn the determination of Physical constants of organic compounds.	<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

C.PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
	1.Determination of boiling /melting points by semi micro method. 2. Preparation of Organic Compounds - Oxidation ,Reduction, Hydrolysis , Nitration , Bromination , Diazotization , Osazone formation	21.2.2022 to 09.03.2022			
	1. Estimation of Lead as lead chromate. 2. Estimation of Barium as barium chromate. 3. Estimation of Nickel as Nickel - DMG complex. 4. Estimation Calcium as calcium oxalate monohydrate 5. Estimation of Barium as barium sulphate.	17.03.2022 to 12.04.2022			
	Organic Aalysis -I to VII	22.04.2022 to 03.05.2022			

D.ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	01.06.2022 to 10.06.2022



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A. GENERAL INFORMATION

Name of the Faculty	: Mrs. S. Malathy
Department	: PG Department of Chemistry
Programme	: B.Sc., Chemistry
Programme Code	: USC
Name of the Paper	: Nuclear, Industrial Chemistry and Metallic State
Lecture Hours / Practical Hours	: 6 Hrs / Week / Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<p>Students learn about fundamental of Nuclear Chemistry.</p> <ul style="list-style-type: none">• Students will learn measurement and applications of radioactive isotopes.• Students study composition and uses of fossil fuels, safety matches, paint and varnish.• Students understand the various theories of metallic bonding, different types of semi conductors.• Students shall know the composition and uses of Inorganic polymers and silicates.	<ul style="list-style-type: none">• On completion of the course the learner will be able• Acquire knowledge of nuclear structure, stable and unstable atomic nuclei.• Know the fundamentals of radioactivity, isotopic chemistry, radiation chemistry and the applications of these in medicine, agriculture and industry.• Learn about the fossil fuels, safety matches, paints and varnishes.• Handle the semiconductors.• Gain a preliminary understanding of inorganic polymers.	<ul style="list-style-type: none">• Chalk and Talk• Powerpoint.• e-Module

C. PLAN OF THEWORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	NUCLEAR CHEMISTRY I <ul style="list-style-type: none"> • Introduction composition of nucleus and nuclear forces. • Nuclear stability - o/p ratio, mass defect, binding energy, • packing fraction and magic numbers, shell and drop models. • Isotopes – detection and separation. Isotopic constitution of elements and whole number rule. Deviation of atomic weights from whole numbers. • Isobars, isotones and isomers. 	24.02.2022 to 09.03.2022	2hrs 3hrs 3hrs 3hrs 1hrs		
Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	NUCLEAR CHEMISTRY II <ul style="list-style-type: none"> • Radioactivity- Radioactive emanations. Disintegration theory – modes of decay – Group displacement law – Rate of disintegration – Half life and average life – Radioactive series, Geiger Nuttal rule. • Detection and measurements -Wilson cloud chamber & Geiger 	11.03.2022 to 22.03.2022	3hrs 2 hrs 4hrs 2 hrs		

	Muller Counter. Nuclear transformations use of projectiles nuclear reactions fission and		4hrs		
Unit III Content -15 Hrs, Assessment - 3 Hrs. Total-18 Hrs.	INDUSTRIAL CHEMISTRY Fossil fuels – varieties of coal and petroleum – petroleum refineries in India Gaseous fuels – natural, gohar, coal, water, semi water and producer gases. Liquefied Petroleum Gases (LPG) Safety matches – Introduction, Raw materials and manufacturing methods. Paints and varnishes- Definition, types and composition.	25.03.2022 to 08.04.2022	3hrs 2 hrs 4hrs 2 hrs 4hrs		
Unit IV Content -15 Hrs, Assessment- 3 Hrs. Total-18 Hrs.	METALLIC STATE Metallic state – packing of atoms in metal (BCC,CCP,HCP). Theories of metallic bonding- Electron gas Pauling and Band theories. Structure of alloys substitutional and interstitial solid solutions – humerothery ratios crystal defects. Semi conductors – Extrinsic	09.04.2022 to 27.04.2022	3hrs 4hrs 3hrs 2hrs 3hrs		

	and Intrinsic – n-type and p-type conductors.				
	<ul style="list-style-type: none"> • Structure and uses in electronic industry 				
Unit V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	INORGANIC POLYMERS & SILICATES Inorganic polymers – coordination polymers, metal alkyls, phosphonitrilic polymers. Silicates – Classification into discrete an ions, one, Two and three dimensional structure with typical examples. Composition, properties and uses of beryl, asbestos, Talc, mica, zeolites and ultramarines.	28..04.2022 to 10.05.2022	3hrs		
			3hrs		
			2hrs		
			3hrs		
			4hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I & II (March) CIA / Mid Semester – Unit-I ,III (first ½ portion)& Unit-II - 2 ½ Unit(October) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit III & Unit-V- 2 ½ Units (April)
Assignment	Assignment I –Unit –I and Unit –II (March) AssignmentII– Unit –III and Unit – IV(April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (May)
Seminar	Unit –V (May)
Tutorial Ward Meeting	Monthlyonce



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A. GENERAL INFORMATION

Name of the Faculty	:	Mrs. A. Rakini
Department	:	PG Department of Chemistry
Programme	:	B.Sc., Chemistry
ProgrammeCode	:	UCS
Name of the Paper	:	Agricultural Chemistry
Lecture Hours /		
Practical Hours	:	75 Hrs / Week / Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Students learn about the composition and properties of soil.• Students understand the source and properties of Micronutrient fertilizer.• Students know the importance of Green manure.• Students study about the pest management and its control.• Students know the chemistry of Fungicide, Herbicide and Acaricide.	<ul style="list-style-type: none">• On completion of the Course, Students should be able to Students acquire the basic knowledge of Composition, Physical and Chemical properties of soil.• Students able to understand the secondary and micronutrient fertilizer.• Students can accumulate skills about green manure.• Students should be able to apply the knowledge of Pest Management and control.• Students should know the preparation and applications of fungicides and herbicides.	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs	COMPOSITION AND PROPERTIES OF SOIL Definition of soil, soil composition. Soil Physical properties soil, separates and particle size distribution soil texture and structure. Bulk density, particle density, pore space, soil air, soil temperature, soil water. Soil chemical properties - soil colloids - Inorganic colloids - clay minerals - amorphous - Ion exchange reactions - organic colloids soil organic matter - Decomposition - Humus formation - significance on soil fertility, soil reaction.	25.02.2021 to 07.03.2021	2 hrs 3hrs 2hrs 3hrs		
Unit II Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs	MICRONUTRIENT FERTILIZER Secondary and micronutrient fertilizers - complex and mixed fertilizers - sources, manufacture, properties and reactions in soils. Preparation of slow release fertilizer - compatibility of fertilizers - fertilizer blending	09.03.2021	3 hrs 2 hrs 3 hrs	-	-

<p>Unit III Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs</p>	<p>GREEN MANURE Nutrient potential of different organic manures Agricultural, industrial and urban wastes – Preparation of enriched farm yard manures - Zinc enriched organics. Green manures – green leaf manure – bulky organic and concentrated organic manures – ting of coir pith; sugarcane trash, leaf litters and farm wastes – oil cakes, bone meal, fish meal, guano poultry manures - Fertilizer use efficiency – integrated nutrient management.</p>	<p>25.03.2022 to 08.04.2022</p>	<p>2 hrs 2 hrs 3 hrs 2 hrs 2 hrs</p>		
<p>Unit IV Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs</p>	<p>PEST MANAGEMENT & CONTROL Pesticides – formulations – emulsifiable concentrate, water miscible liquids, wettable powders dusts, granules, Classification of pesticides – mode of action – characteristics – uses and safety measures in the analysis and handling of pesticides. Insecticides – plant products– Nicotine, pyrethrum, rotenone, petroleum oils. Inorganic Pesticides – Arsenical fluorides, borates. Organic pesticides – organ chlorine compounds – D.D.T, B.H.C., methoxychlor,</p>	<p>09.04.2022 to 02.05.2022</p>	<p>2hrs 2 hrs 2 hrs 2 hrs</p>		

	<p>chloredane, endosulfon.</p> <p>Organophosphorous compounds dichlorevas, methyl carbamic acid derivatives - carbaryl - structure and mode of action.</p>		2 hrs		
<p>Unit V Content- 12 Hrs, Assessment -3 Hrs Total - 15 Hrs</p>	<p>FUNGICIDES, HERBICIDES & ACARICIDES</p> <p>Fungicides, inorganic - sulphur compounds - copper compounds - Mercuric compounds, organic - dithiocarbamates - Dithane .Boredeaux mixture.</p> <p>Herbicides : Inorganic herbicides - Arsenical compounds Boron compounds cyanamide - cyanides and thiocyanates, chlorates and sulphamates.</p> <p>Organic herbicides - Nitro-compounds, chlorinated compounds - 2,4D-Pyridine compounds, Triazine compounds - Propionic acid derivatives - urea herbicides, alachlor. Acaricides - Rodenticides - Attractance - Repellants - Fumigants Defoliantes.</p>	<p>09.05.2022 to 23.05.2022</p>	<p>2hrs</p> <p>2hrs</p> <p>2 hrs</p> <p>2 hrs</p> <p>2 hrs</p>		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I& II (March) CIA / Mid Semester – Unit-I ,II& Unit-III (first ½ portion) - 2 ½ Unit(March) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV&Unit-V- 2 ½ Units(April)
Assignment	Assignment I –Unit –I and Unit –II (March) Assignment II – Unit –III and Unit – IV (April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (May)
Seminar	Unit –V (April)
Tutorial Ward Meeting	Monthly once



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A. GENERAL INFORMATION

Name of the Faculty	: R.MAHESWARI
Department	: Chemistry
Programme	: M.Sc., Chemistry
Programme Code	: PSC
Name of the Paper	: Inorganic Chemistry II
Lecture Hours / Practical Hours	: 90Hrs

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Understand the role of metal ions in biological process.• Learn the basic concepts of chemotherapy.• Know the principle of catalysis and reaction mechanisms of organometallics.• Illustrate the structure and bonding in organometallics.• Acquire knowledge in the field of medicinal bioinorganic chemistry.	<ul style="list-style-type: none">• On completion of the course the learner will be able• Apply the basic principles in bioinorganic chemistry.• Illustrate the role of metal in biological system and their function.• Describe the structural and functional relationship, mechanisms and importance of Metalloenzymes.• Tabulate the role of metal ions in enzymes involved in acid-base reactions.• Explain the role of metal ions that are involved in electron – transfer reactions in biological systems.	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

	<p>activation - cytochromes, ferredoxins and rubredoxin-model systems, mononuclear non-heme iron enzymes.</p> <p>Copper containing proteins-classification and examples-electron transfer- oxygen transport-oxygenation-oxidases and reductases-cytochrome oxidase-Superoxide dismutase (Cu,Zn)-nickel containing enzyme: urease.</p>				
<p>Unit -III Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>MEDICINAL BIOINORGANIC CHEMISTRY Bioinorganic chemistry of quintessentially toxic metals-lead, cadmium, mercury, aluminium, chromium, copper and plutonium- detoxification by metal chelation- drugs that act by binding at them etalsites of metallo enzymes. Chemotherapy- chemotherapy with compounds of certain non-essential elements - platinum complexes in cancer therapy - cisplatin and its mode of action- cytotoxic compounds of other metals. Gold containing drugs as anti- rheumatic agents and their mode of action - lithium in psycho pharmacological drugs- radiopharmaceuticals- technetium.</p>	<p>9.4.2022 to 7.5.2022</p>	<p>4hrs</p> <p>3hrs</p> <p>4hrs</p> <p>4hrs</p>		
<p>Unit -IV Content- 15 Hrs, Assessment - 3 Hrs</p>	<p>ORGANOMETALLICS: The 18 electron rule - applications and limitations- isolobal concept and its</p>	<p>9.5.2022 to 18.5.2022</p>	<p>4hrs</p>		

<p>Total - 18 Hrs</p>	<p>usefulness–uses of typical organometallics such as metal alloys and organometallic hydrides in organic synthesis. Nitrosyl complexes – bridging and terminal nitrosyls, bent and linear nitrosyls –dinitrogen complexes–metallocene and arene complexes–metallocenes, carbenes, carboxylate anions. Classification based on captivity and polarity of M-C bond, organometallic compounds of lanthanides and actinides–fluxional organometallic compounds- organometallics in medicine, agriculture, horticulture and industry.</p>		<p>3hrs</p> <p>4hrs</p> <p>4hrs</p>		
<p>Unit -V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>REACTIONS AND CATALYSIS BY ORGANOMETALLICS: Organometallic reactions– ligand association and dissociation – oxidative addition and reductive elimination–insertion reactions. Reactions of coordinated ligands in organometallics– hydrogenation, hydroformylation, epoxidation, metathesis. Polymerization of olefins, olefin oxidation (Wacker process) and carbonylation of methanol.</p>	<p>20.5.2022 to 2.6.2022</p>	<p>4hrs</p> <p>3hrs</p> <p>4hrs</p> <p>4hrs</p>		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (January) CIA / Mid Semester – Unit-I,II - 2 Unit (February) CIA / Model Examination -Unit-III , Unit IV & Unit-V- 3Units (March)
Assignment	Assignment I –Unit –I& II (February) Assignment II- Unit –III to Unit – V (March)
Quiz	Two Mark Quiz Test - Unit I – Unit – V (March)
Seminar	Unit –V (March)
Tutorial Ward Meeting	Monthly once



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A. GENERAL INFORMATION

Name of the Faculty	: Ms.N.P.RUDRA SHOWDRI
Department	: Chemistry
Programme	: M.Sc., Chemistry
Programme Code	:PSC
Name of the Paper	: PHYSICAL METHODS IN CHEMISTRY
Lecture Hours /	
Practical Hours	: 3Hrs / Week / Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Understand the principles of molecular spectroscopy.▪ Study UV, NMR and IR spectroscopy of organic compounds.▪ Learn the ESR, ORD and Mass spectroscopy of organic compounds.▪ Know the effect of X-ray, electron, neutron diffractions of compounds.	<ul style="list-style-type: none">• On completion of the course the learner will be able• Describe the selection rule for Infrared -active transitions.• Compare and contrast atomic and molecular spectra.• Apply spectral concepts to solve the problems, elucidate structures of simple compound• Perform the most commonly used NMR experiment to interpret and document their results.	<ul style="list-style-type: none">• Chalk and Talk• Power point.

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content -15 Hrs, Assessment -3Hrs. Total-18 Hrs.	PRINCIPLES OF MOLECULAR SPECTROSCOPY 1. Microwave spectroscopy, rotational spectra of diatomic molecules, rigid and non-rigid rotors – intensity of spectral lines 2. Effects of isotopic substitution – microwave spectra of poly atomic molecules– linear and symmetric top molecules 3. Infrared spectra–diatomic molecules, simple harmonic and anharmonic oscillators. 4. Diatomic vibrating rotator rotation – vibration spectrum of carbon monoxide 5. Interaction of rotation and vibration (breakdown of Born-Oppenheimer approximation) 6. Influence of the rotation on the spectrum of poly atomic molecules, linear and symmetric top molecules, parallel and perpendicular vibrations–influence of nuclear spin. 7. Raman spectra–rotational Raman spectra of linear and symmetric top molecules 8. Vibrational Raman spectra–rotational fine structure–electronic spectra of diatomic molecules 9. Vibrational coarse structure–intensity of vibrational lines in electronic spectra– rotational fine structure – Fortrat diagram.	02.3.2022 to 26.3.2022	3 hrs 2 hrs 1 hr 1 hr 2hrs 1 hr 1 hr 2 hr		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I& II (March) CIA / Mid Semester – Unit-I ,II & Unit-III (first ½ portion) - 2 ½ Unit(April) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV&Unit-V- 2 ½ Units(May)
Assignment	Assignment I –Unit –I and Unit –II (March) Assignment II – Unit –III and Unit – IV (April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (May)
Seminar Tutorial Ward Meeting	Unit –V (May) Monthly once



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A. GENERAL INFORMATION

Name of the Faculty : Dr.J.BHUVANA & N.P.RUDRA SHOWDRI

Department : Chemistry

Programme : M.Sc

Programme Code : PSC

Name of the Paper : ORGANIC CHEMISTRY PRACTICAL – II

Lecture Hours / Practical Hours : 6 Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">• Carry out the qualitative analysis of an organic mixture.• Perform the preparation of organic compounds.	<ul style="list-style-type: none">• On completion of the course the learner will be able to• Study the estimation of chemicals, which provide knowledge about the purity and concentration• Expertise in organic synthetic methods	<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

D. PLAN OF THE WORK

Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Estimation of phenol and aniline	21.02.22	-	6 Hrs	
Estimation of ketone and glucose	01.03.22	-	6 Hrs	
Estimation of saponification value of an oil and iodine value of oil.	09.03.22	-	6 Hrs	
Preparation of p-Bromoacetanilide from aniline(acetylation and bromination) Acetyl salicylic acid from methyl salicylate (hydrolysis and acetylation)	17.03.22	-	6 Hrs	
Preparation of 1,3,5-Tribromobenzene from aniline (bromination, diazotization and hydrolysis) p-Nitro aniline from acetanilide (nitration and hydrolysis)	25.03.22	-	6 Hrs	
Preparation of Benzilic acid from benzoin (rearrangement) p-Aminobenzoic acid from p-nitrotoluene (oxidation and reduction)	04.04.22	-	6 Hrs	
Preparation of p-Bromoaniline from acetanilide (bromination and hydrolysis) m-Nitroaniline from nitrobenzene(nitration and reduction)	02.05.22	-	6 Hrs	

A. GENERAL INFORMATION

Name of the Faculty : R.MAHESWARI
Department : Chemistry
Programme : M.Sc.,
Programme Code : PGQIY
Name of the Paper : Inorganic chemistry practical-II
Lecture Hours /Practical Hours : 6 Hrs / Week /

B.ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To perform the qualitative analysis of a given Inorganic mixture.• To carry out the preparation of Inorganic complexes.• .	<ul style="list-style-type: none">• On completion of the course students should be able to• Doing the estimation of chemicals which provide knowledge about the purity and concentration.• Expertise inorganic synthetic methods	<ul style="list-style-type: none">• Students has to be in time for• the laboratory• Students are not allowed into• the lab without prepared• Observation Note.• A student has to complete• the practical and calculations• at the stipulated time give to• them.• Students have to receive the• signature in the observation• note on the same day or on• or before entering the next• practical class.

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
	Estimation by Complexometry : <ul style="list-style-type: none"> • 1. Titrimetry and Gravimetry • A mixture of solution(s) should be given for • Estimation of Cu(V) and Ni(G) • Cu(V) and Zn(G) • Fe(V) and Zn(G) • Fe(V) and Ni(G) • ZnI and Cu(G) 	25.2.2022 to 23.3.2022		2Hrs 2Hrs 2Hrs	-
	Preparation of complexes <ul style="list-style-type: none"> • 1. Tris(thiourea) copper(I) chloride • 2. Tetraammine copper(II) sulphate • 3. Potassium tri oxalate ferrate • 4. Potassium tri oxalate aluminate(III) • 5. Potassium tri oxalate chromate(III) • 6. Hexamine cobalt(III) chloride 	1.4.2022 to 10.5.2022		2Hrs 2Hrs 2Hrs	

D. ACTIVITIES

Activities Name	Details
Repetition Class	25.2.2022 to 10.5.2022
Observation Correction	
Record Correction	
Mid Semester	
Model Practical	

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A. GENERAL INFORMATION

Name of the Faculty :Mrs.M.Sivagamasundari
Department : Chemistry
Programme : M.Sc Chemistry
Programme Code :PSC
Name of the Paper :Non Conventional energy sources
Lecture Hours / Practical Hours :6 Hrs / Week/ Lecture Hours

B.ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To understand the various types of energy sources.• To learn about the solar energy• To introduce the importance of wind energy & fuel cells.• To acquire knowledge about bioenergy.• To know the different tidal power plants.	<ul style="list-style-type: none">• On completion of the course the student will be able to• To Understand the various energy sources• To Understand the solar energy• To learn about the wind energy• To study the Bio energy and it's composition, wet process and dry process• To learn about the tidal power plants	<ul style="list-style-type: none">• Power point• E- module• Chalk and Talk method

C. PLAN OF THE WORK

Unit / Module	Topic to be Covered	Proposed date	Lecturer Hour	Practical Hours	Remark
Unit I Content- 15 Hrs, Assessment- 3Hrs Total- 18 Hrs	1.Energy sources	02.303.2022 to 19.03.2022	3 hrs		
	introduction to energy, Different forms of energy		2 hrs		
	2.Primary and secondary sources		2 hrs		
	3.Various types of conventional Energy sources, Fossil fuel energy		3 hrs		
	4.Hydraulic energy and nuclear energy, Various types of Energy sources		2 hrs		
5.Wind energy, Tidal energy,solar energy	3 hrs				
Unit II Content- 15 Hrs Assessment- 3 hrs Total- 18 Hrs	1.Solar Energy Introduction, solar constant, solar radiation at the Earth's surface,	28.03.2022 to 31.03.2022	3 hrs		
	2.Solar energy applications, solar cooker design principal, constructional details and limitations of solar cooker		2 hrs		
	3.Solar water heater, Solar distillation, solar pumping		2 hrs		
	4.Electricity from solar energy, street lighting		3 hrs		
Unit III Content- 15	1.Wind energy, Classification of wind mills	19.03.2022	3 hrs		

Hrs Assessment- 3 hrs Total- 18 Hrs	2.Horizontal wind mills, Vertical wind mills, Advantage and disadvantage of wind energy 3.Fuel cells introduction, working of fuel cells Advantages of fuel cell	to 28.03.2022	2 hrs 2 hrs 3 hrs 2 hrs 3 hrs		
Unit- IV Content -15 Hrs Assessment -3 hrs Total- 18 hrs	1.Bio energy introduction, Bio gas and it's compositions, process of bio gas generation 2.Wet process and dry process, Raw materials available for bio gas fermentation 3.Constructional details of bio gas plant, Utilization, KVIC Biogas plant, Advantages and disadvantage of bio gas technology	29.04.2022 to 06.05.2022	3 hrs 2 hrs 2 hrs 3 hrs 3 hrs 2 hrs 3 hrs		
Unit V Content-15 hrs Assessment - 3 hrs Total - 18 hrs	1.Tidal power plant introduction, classification of Tidal power plants 2.Working of different tidal power plants, factors affecting the suitability of the sitefor tidal power plant	07.04.2022 to 28.04.2022	3 hrs 2 hrs 2 hrs 3 hrs 3 hrs 2 hrs 3 hrs		

D.Activities

Activities Name	Details
Test	Monthly Test- Uni III (Februry)
Assignment	CIA / Mid Semester – Unit-I ,II(1/2 Unit) & IV (Februry) CIA / Model Examination -Unit-II(second 1/2 Unit), Unit III & Unit-V- 2 ½
Quiz	Assignment I – Unit I & II (March) Two Mark Quiz Test Unit IV & V(March)
Tutorial ward Meeting	Monthly once



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	: Mrs. S. Malathy & A.Rakini
Department	: Chemistry
Programme	: M.Sc., Chemistry
Programme Code	: PSC
Name of the Paper	: PHYSICAL CHEMISTRY PRACTICAL – II
Lecture Hours / Practical Hours	: 6 Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">• To develop skills to estimate acids and bases byconductometry.• To learn and acquire ability to estimate ionic species using potentiometer.• To understand the concept of electro de potential.	<ul style="list-style-type: none">• On completion of the Course, Students should be able to• Understand Conduct metric titrations of: Strong acid Vs. strong base (ii) Weak acid vs. strong base, (iii) Mixture of strong acid and (iv)weak acid vs. strong base, Strong acid vs. weak base.• Develop skills in Potentiometric titrations of: (i) Strong acid vs. strong base (ii) Weak acid vs. strong base.	<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

B. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
	I-Conductometric Titrations				
	Basic Concepts	22.02.2022		6 Hrs	
	Procedure Given		-		-
	1. Estimation of strong acids.			6 Hrs	
	2. Estimation of mixture of acids			6 Hrs	
	3. Estimation of mixture of bases				
	1. Estimation of halides			6 Hrs	
	2. Verification of Ostwald's dilution law			6 Hrs	
	3. Determination of solubility of sparingly soluble salt.				
	EMF MEASUREMENTS				
	4. Estimation of KI [KMnO ₄ Vs KI]	02.03.2022		6 hrs	
	5. Estimation of KI [K ₂ Cr ₂ O ₇ Vs KI]	to		6 hrs	
	6. Estimation of mixture of halides [KCl + KI]	05.05.2022		6 hrs	
	7. Estimation of strong acid [NaOH Vs HCl]				
	8. Estimation of Acetic acid [NaOH Vs CH ₃ COOH]			6 hrs	
	9. Estimation of mixture of acids [NaOH Vs HCl + CH ₃ COOH]			6 hrs	
	10. Determination of dissociation constant of organic acid.				
	11. Determination of solubility of sparingly soluble salt.			6 hrs	
	12. Determination of p ^H of buffer solutions.				

C. ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	06.05.2021 to 16.05.2022



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	: Dr. N. Prabha & Ms. I. Narchonia
Department	: Chemistry
Programme	: M.Sc
Programme Code	: MQE4
Name of the Paper	: Applied Chemistry.
Lecture Hours / Practical Hours	6 Hrs / Week/ Lecture Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To acquire qualitative and quantitative knowledge of the fundamental concepts of various Spectroscopic methods.• To know the basic principles and applications of UV/V is sectors copy.• To distinguish between various spectroscopic transitions and interpret data for molecular characterization.• To learn the basic principle of FT-IR, NMR sectors copy.• To provide an advanced level in-depth understanding about EPR spectroscopy.	<ul style="list-style-type: none">• Understand how to interpret nuclear magnetic resonance spectrum.• Know how to solve problems based on ^1H and ^{13}C NMR• Know applications of mass spectroscopy in determination of structures.• Understand methods of solving combined problems on all spectroscopic techniques• Explain the basic principle of UV Visible spectroscopy• Arrange components of the spectroscopic device.	<ol style="list-style-type: none">1. Chalk and Talk2. Power point.3. e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1.Food Science - Introduction	21.02.2022 to 16.03.2022	1hr	-	-
	2.Quality Control Measurements - Moisture,ash, crude protein, fat, crude fibre, carbohydrates, calcium, potassium, sodium and phosphate .		4hrs		
	3. Food adulteration - common adulterants in food.		2hrs		
	4. Contamination of food stuffs.		1hr		
	Microscopic examination of foods for adulterants.		1hr		
	8.Food standards- ISIandAgmark.		2hrs		
			2hrs		
Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Pretreatment: Sizing, Desizing- acid method, Scouring- kier boiling method, Bleaching - hypochlorite method, Mercerization, fastness properties washing, rubbing and light fastness	17.03.2022 to 11.04.2022	1hr		
	Dyeing: Dye fibre bond, % of shade, M:L ratio, % Of exhaustion, equilibrium absorption, effect of electrolyte.		4hrs		
	Reactive dye - principles of dyeing, Polyester dyes -		2hrs		
			2hrs		
			1hr		
			1hr		
			2hrs		

	carrier dyeing - mechanism and high temperature dyeing. Mordant dyes - principles - specific examples. Acid dyes-dyeing mechanism, role of electrolyte and dye bath assistants. Vat dyes - vatting - dyeing - oxidation and after treatment		2hrs		
Unit III Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Paint - definitions - ingredients and their role - terminology - emulsion, lacquer. Enamel - pot life, shelf life -varnish - thixotropy -classification of paints based on drying mechanism - under coats - Pigments - classification (organic & inorganic) -	12.04.2022 to 25.04.2022	1hr 4hrs 2hrs 1hr 1hr 2hrs 2hrs 2hrs		
Unit IV Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Introduction - Recycling Technique. 2.Construction materials from waste - Medicines from agricultural waste . 3. Liquid fuels from agricultural - Urban waste and bagasse for electricity. 4. Agricultural waste for biomass into cheap and efficient fuel. 5. Bacteria for paper making. 6.Waste into objects of daily use. Garbage into fuel - How	26.04.2022 to 18.05.2022	2hrs 2hrs 3hrs 2hrs 2hrs 2hrs 2hrs	-	-

	to use garbage to generate power.				
Unit V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1.Mechanism of drug action and Metabolism of Drugs: Mechanism of action – Drug Receptors and Biological responses. 2.Mechanism of different types of drug action – Metabolism of drugs – Chemical pathway of drug metabolism absorption of drugs . 3. Routes of administration - factors affect absorption – Digestion and absorption of protein – Digestion of fat.	19.05.2022 to 11.06.2022	1hr 4hrs 2hrs 1hr 1hr 2hrs 2hrs 2hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (March) CIA / Mid Semester – Unit-I,II (first ½ portion)& III - 2 ½ Unit (April) CIA / Model Examination -Unit-II(Second 1/2 Unit) , Unit IV & Unit-V- 2 ½ Units (June)
Assignment	Assignment I –Unit –I (March) Assignment II- Unit –II and Unit – IV (May)
Quiz	Two Mark Quiz Test - Unit I – Unit – V (May)
Seminar Tutorial Ward Meeting	Unit –IV (May) Monthly once

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A. GENERAL INFORMATION

Name of the Faculty : Mrs. S. Malathy & Mrs. A. Rakini

Department : Chemistry

Programme : M.Sc

Programme Code : PGQE5

Name of the Paper : Recent Trends in

Chemistry Lecture Hours : 6 Hrs / Week /

Lecture Hours.

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• Gain knowledge in Nano Chemistry.• Acquire the ideas about material science.• Learn about Supra molecular chemistry in solutions.• Understand basic principles & reactions in Green Chemistry.• Study basic knowledge and resources in chem. informatics.	<ul style="list-style-type: none">• After successfully completing this course, students will be able to• Provide perspectives on future Nano chemistry developments• Follow new developments in material application field.• Explain importance of materials in materials science and scientific field.• A functional understanding of the field of green chemistry.• Chemoinformatics is a rather new discipline in science. It has been described as the application of informatics methods to solve chemical problems.	<ol style="list-style-type: none">1. Chalk and Talk2. Powerpoint.3. e-Module

C. PLAN OF THEWORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	NANO CHEMISTRY Nano chemistry & fundamentals Introduction- difference between bulk materials and nanomaterials . Electronic structure - transport properties - mechanical properties of nanomaterials and carbon nanotubes Physical properties - applications of carbon nanotubes Nano tubes of other materials. Nano Science and nanotechnology. Self assembled mono layers - Introduction	24.02.2022 to 09.03.2022	2hrs 3hrs 1 hr 1hr 1hr 2hrs 2 hrs 2hrs 1hrs		
Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Material science Crystal-crystal lattice-crystal defects-fullerene Super conductors and High temperature materials-bio materials Thermoelectronic materials Nano phase materials-smart material NLO materials-conducting polymers.	11.03.2022 to 22.03.2022	3hrs 2 hrs 4hrs 2 hrs 4hrs		

<p>Unit III Content -15 Hrs, Assessment - 3 Hrs. Total-18 Hrs.</p>	<p>SUPRA MOLECULAR CHEMISTRY Supra Molecular Chemistry – Concepts and Languages of supramolecular Chemistry Supramolecular Reactivity and Catalysis. Catalysis by Reactive Macro cyclic Cationceptor Molecules. Catalysis Anion Receptor Molecules. Catalysis with Cyclophanes. Receptors, Supramolecular Metallo catalysis. Cocatalysis: Catalysis of Synthetic reactions. Biomolecular and Abiotic Catalysis.</p>	<p>25.03.2022 to 08.04.2022</p>	<p>2 hrs. 3hrs 2hrs 3hrs 2hrs 3hrs</p>		
<p>Unit IV Content -15 Hrs, Assessment - 3 Hrs. Total-18 Hrs.</p>	<p>GREEN CHEMISTRY Green Chemistry – PhotoChemical Principles Photo oxidation – photodegradation Hazardous metal ions in water Removal of hazardous chemicals from water 5. cleaner production concept – Implementation - Government rule.</p>	<p>27.04.2022 to 05.05.2022</p>	<p>3hrs 4hrs 3hrs 2hrs 3hrs</p>		
<p>Unit V Content- 15 Hrs,</p>	<p>CHEM-INFORMATICS Introduction – Evaluation – History and uses –</p>		<p>3hrs 3hrs</p>		

Assessment - 3 Hrs	2.Molecular modeling using computer –Basicidea	06.05.2022		
Total - 18 Hrs	Chemical information data ase design and their Management	to	2hrs	
	Data base concepts - structural languages	24.05.2022	3hrs	
	chemical data basedesign		4hrs	
	Chemical information sources -			
	chemicalinformationresearc hes formulasearching.			

D. ACTIVITIES

Activities Name	Detail s
Test	Monthly Test- Unit-I & II (March) CIA / Mid Semester – Unit-I ,III (first ½ portion)& Unit-II - 2 ½ Unit(October)
Assignment	CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit III & Unit-V- 2 ½ Units (April)
Quiz	Assignment I –Unit –I and Unit –II (March)
Seminar Tutorial Ward Meeting	AssignmentII – Unit –III and Unit – IV(April)
	Two Mark Quiz Test - Unit I to Unit – V (May)
	Unit –V (May)
	Monthlyonce

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	: M.Tamilpriya
Department	: Chemistry
Programme	: M.Sc
Programme Code	: PSC
Name of the Paper	: Analytical Techniques
Lecture Hours / Practical Hours	:6 Hrs / Week/ Lecture Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To study thermo analytical techniques for chemical analysis.• To understand electro analytical techniques.• To learn the nature of errors and their types.• To gain sound knowledge on methods of crystal growth.• To learn diffraction studies and its applications.	<ul style="list-style-type: none">• Explain the theoretical aspects of key analytical techniques and instruments• CO2: Strategically plan analytical campaigns to apply to different types of samples and research objectives, including selection of the most appropriate technique/instrumentation for the students' research project.• CO3: Undertake the correct sample preparation and characterization prior to analysis by the chosen techniques or instruments.• CO4: Design an analytical work-flow to acquire data• CO5: Process data from the chosen instruments and demonstrate understanding of the limitations .	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Thermogravimetry principle factors affecting thermogram, Instrumentation and thermal decomposition of $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$ and $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ 4. Instrumentation of TGA & DTA 5. experimental factors of DTA and DSC. 6. Thermal Studies of $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ by DTA and determination of purity of Pharmaceutical and Phase-transition Studies. by DSC.	24.02.2022 to 14.03.2022	1hr 4hrs 2hrs 2hrs 4hrs	-	-
Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Electro Analytical Methods. 2. Electrogravimetry-Principle instrumentation. 3. deposition and separation Electrolysis. 4. Estimation of copper. 5. Coulometry principle, controlled potential coulometry . 6. separation of nickel and Cobalt 7. Coulometric titration. 8. instrumentation- estimation of $\text{Sb}(\text{III})$. 9. Potentiometry principle , potentiometric titration. 10. Colorimetry Beer - Lambert's law and Spectrophotometric method. 11. Principle & methods of visual colorimetry . 12. Estimation of iron and nickel by Visual Colorimetry.	15.03.2022 to 30.03.2022	1hr 4hrs 2hrs 2hrs 2hrs 2hrs	-	-
Unit III Content- 15	1. Data analysis. Various type of	31.03.2022	2hrs		

<p>Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>errors. 2. Precision and accuracy Significant figures. 3. Positive and negative deviation from accurate results. The binomial distribution. 4. The Gaussian distribution. The normal distribution of random - errors, mean Value, Variation and Standard deviation reliability interval, deviation. 5. Student's t distribution of T-test & F-Test. 10. Gross errors and elimination of outlying Results. 6. Graphical methods linear regression. Regression line. Standard deviation. Correlation coefficient</p>	<p>to 19.04.2022</p>	<p>2hrs 3hrs 3hrs 3hrs 2hrs</p>	<p>-</p>	<p>-</p>
<p>Unit IV Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>1. Crystallography. Single Crystal growth. Solution growth technique 2. Gel and Sol-gel Methods. Melt growth - Bridgeman- Stockberger Method. 3. Czochralski methods. Flux-technique. Physical and chemical vapour transport methods. 4. Characterization - TGA/DTA/DSC Methods. 5. SEM and TEM analysis. Determination of hardness. Application of single crystals.</p>	<p>27.04.2022 to 09.05.2022</p>	<p>3hrs 3hrs 3hrs 3hrs 3hrs</p>	<p>-</p>	<p>-</p>

Unit V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Diffraction Studies.	11.05.2022 to 19.05.2022	2hrs	-	-
	2.X-ray Diffraction - powder and a single crystal Method .		3hrs		
	3. Advantage over neutron Diffraction methods .		2hrs		
	4. Application of X-ray diffraction method. 5. Neutron diffraction.		2hrs		
	6. Advantage over Electron diffraction.		3hrs		
			3hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I& II (March) CIA / Mid Semester – Unit-I ,II & Unit-III (first ½ portion) - 2 ½ Unit(March) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV&Unit-V- 2 ½ Units(April)
Assignment	Assignment I –Unit –I and Unit –II (March) Assignment II – Unit –III and Unit – IV (April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (May)
Seminar	Unit –V (April)
Tutorial Ward Meeting	Monthly once



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TEACHING PLAN

E. GENERAL INFORMATION

Name of the Faculty : Ms.N.P.RUDRA SHOWDRI

Department : Chemistry

Programme : II B.Sc., Zoology

Programme Code : USZ

Name of the Paper : Allied

Chemistry

Lecture Hours /Practical Hours : 5 Hrs / Week

/ Lecture Hours.

F. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none"> • To understand the various theories of coordination chemistry • To study the natural products and polymers • To learn about photochemistry 	<ul style="list-style-type: none"> • To know about the identification of organic compounds • To gain knowledge in amino acids, DNA and RNA 	<ul style="list-style-type: none"> • Chalk and Talk • PowerPoint. • e-Module

G. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment -3 Hrs Total - 18 Hrs	Coordination Chemistry.		1hr		
	Nomenclature of mononuclear complexes.	24.02.2022	1 hr		
	3. Werner theory. 4. Sidgwick theory. Pauling's theory.	To 04.03.2022	2hr 3 hr		
	Chelating and its industrial importance EDTA.		1hr		-
	7. Biological Role of	03.02.2021	3 hr		-

	hemoglobin and Chlorophyll. 8.Application of complexes in quantitative and qualitative analysis.	to 09.02.2021	1hr		
Unit II Content- 15 Hrs, Assessment - 3Hrs Total - 18 Hrs	CARBOHYDRATES Glucose and fructose preparation and structure 2.Classification of amino acids 3.Preparation and properties of Essential and non essential amino acids .Biological functions of peptides Biological functions of proteins DNA RNA.	07.03.2022 to 15.03.2022	1hr 1 hr 2hr 3 hr 1hr 4 hr 1hr		
Unit III Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Synthetic polymers. Teflon, alkyd and epoxy resins & poly estas - general treatment Only. Heterocyclic Compounds. Furan, thiophene - preparation and properties. pyrrole , Pyridine - Preparation and properties .	17.03.202 to 21.03.2022	1 1hr 1 hr 2hr 3 hr 1hr 5 hr 1hr	-	-
Unit -IV Content- 15 Hrs, Assessment - 3 Hrs	1.Surface chemistry 2.Colloids,Emulsions, gels- Preparation properties and applications. 3.Electrophoresis. 4.Chromatography 5.Column, paper	22.3.2022 to 28.3.2022	1hr 1hr 1hr 1hr		

Total - 18 Hrs	Chromatography. 6.Thin layer chromatography. 7.Photochemistry 8.Law of photo chemistry applications.				
Unit V Content- 15 Hrs, Assessment - 3Hrs Total - 18 Hrs	1.Identification of organic compounds 2. Importance of pH 3.Importance of buffer in living systems 4. pH determination by colorimetric method	05.5.2022 to 18.5.2022	1hr 1 hr 2hr 3 hr 1h 3hrs 1hr		

H. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I & IV (March) CIA / Mid Semester – Unit-I ,II (first ½ portion)& Unit-IV - 2 ½ Unit(April) CIA / Model Examination -Unit-II(Second 1/2 Unit) , Unit III & Unit-V- 2 ½ Units (May)
Assignment	Assignment I –Unit –I and Unit –II (March) AssignmentII – Unit –III and Unit – IV(April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (April)
Seminar Tutorial Ward Meeting	Unit –V (May) Monthly once

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A. GENERAL INFORMATION

Name of the Faculty : M.Sivagamasundari
Department : Chemistry
Programme : II B.Sc Physics
Programme Code : USP
Name of the Paper : Allied Chemistry
Lecture Hours / Practical Hours :90 Hrs

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To understand the various theories of coordination chemistry• To study the natural products and polymers• To learn about chromatography	<ul style="list-style-type: none">• To give an idea about the biological function importance of hemoglobin and chlorophyll• To understand the reactions of heterocyclic compounds• To know the separation techniques like chromatography• To identify the organic compounds.	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit I Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	Coordination Chemistry. 2.Nomenclature of mononuclear complexes. 3. Werner theory.	02.3.2022 to 18.03.2022	2hrs 2 hrs		

	<p>4. Sidgwick theory.</p> <p>5. Pauling's theory.</p> <p>6. Chelation and its industrial importance of EDTA.</p> <p>7. Biological Role of hemoglobin and Chlorophyll.</p> <p>8. Application of complexes in quantitative and qualitative analysis.</p>		<p>2hrs</p> <p>2hrs</p> <p>2hrs</p> <p>2hrs</p> <p>2hrs</p> <p>1hrs</p>	-	-
<p>Unit II Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>1. Synthetic polymers.</p> <p>2. Teflon, alkyd and epoxy resins & poly esters - general treatment Only.</p> <p>3. Heterocyclic Compounds.</p> <p>4. Furan, thiophene - preparation and properties.</p> <p>5. pyrrole, Pyridine - Preparation and properties.</p>	<p>19.03.2022 to 02.04.2022</p>	<p>3hrs</p> <p>2hrs</p> <p>3hrs</p> <p>3hrs</p> <p>2hrs</p> <p>2hrs</p>		
<p>Unit- III Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs</p>	<p>Identification of Organic Compounds - Phenol, Carbohydrate, Amine, Amide, Aldehyde, Ketone and Carboxylic acid.</p> <p>5.2 pH and Buffer - Importance of pH and buffers in living systems - pH determination by colorimetric and</p>	<p>05.04.2022 to 29.04.2022</p>	<p>4hrs</p> <p>3hrs</p> <p>4hrs</p> <p>4hrs</p>		

	electrometric methods.				
Unit- IV Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1. Ionic Equilibria in aqueous solution ,Acids and bases, Arrhenius theory, Lowry - Bronsted concept, lewis concept Self ionization of water - weak acids and bases, dissociation constant, Hydrolysis - buffer solutions, action of buffers - acid base indicators Acid base titrations- basics complex ion equilibria. Corrosion - Types- prevention	05.05.2022 to 18.05.2022	2hrs 3hrs 2hrs 1hr 2hrs 2hrs 1hr 2hrs		
Unit -V Content- 15 Hrs, Assessment - 3 Hrs Total - 18 Hrs	1.Surface chemistry 2.Colloids,Emulsions, gels- Preparation and properties and applications. 3.Electrophoresis. 4.Chromatography 5.Column, paper Chromatography. 6.Thin layer chromatography. 7.Photochemistry 8.Law of photo chemistry applications.	29.04.2022 to 0505.2022	3hrs 2hrs 3hrs 4hrs 3hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I (January) CIA / Mid Semester – Unit-I,II - 2 Unit (February) CIA / Model Examination -Unit-III , Unit IV & Unit-V- 3Units (March)
Assignment	Assignment I –Unit –I& II (February) Assignment II– Unit –III to Unit – V (March)
Quiz	Two Mark Quiz Test - Unit I – Unit – V (March)
Seminar Tutorial Ward Meeting	Unit –V (March) Monthly once



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	: M.Tamilpriya
Department	: Chemistry
Programme	:B.Sc - Allied (Bio Chemistry & Geology)
Programme Code	:USC
Name of the Paper	: Allied Chemistry
Lecture Hours / Practical Hours	: 60 Hrs

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Teaching Methodology
<ul style="list-style-type: none">• To understand the various theories of coordination chemistry• To learn about carbohydrates and proteins• To Study the natural products and polymers• To Learn about Chromatography• To know about the importance of pH and buffer	<ul style="list-style-type: none">• 1.Give an idea about the biological function importance of hemoglobin and chlorophyll.• Understand the biological functions of proteins• Understand the reactions of heterocyclic compounds• Know the separation techniques like chromatography• To identify the organic compounds.	<ul style="list-style-type: none">• Chalk and Talk• Power point.• e- Module

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Unit – I Content – 9 Hrs Assessment-3 Hrs Total- 12 Hrs	Coordination Chemistry 1.Nomenclature of mononuclear complexes Werner, Sidgwick, and Pauling's theories. 2.Chelation and its industrial importance 2 EDTA. Biological role of	24.02.2022 to 15.03.2022	3hrs 2hrs 2hrs 2hrs		
Unit – II Content – 9 Hrs Assessment-3 Hrs Total- 12 Hrs	Carbohydrates 1.Classification- glucose and fructose preparation elucidation of structure of glucose 2.Amino acids and protein Amino acids classification based on structure essential and non essential amino acids 3.preparation and properties peptides (elementary treatment) proteins 4.classification based on physical properties and biological functions. 5.Structures of proteins primary and secondary (elementary treatment). DNA and RNA.	17.03.2022 to 30.03.2022	1hr 2hrs 2hrs 2hrs		
Unit – III Content – 9 Hrs Assessment-3	Synthetic Polymers 1.Teflon, alkyd and epoxy resins, poly esters –	31.03.2022	3hrs		

Hrs Total- 12 Hrs	general treatment only. 2.Heterocyclic Compounds Furan and thiophene preparation and properties. 3.pyrrole and pyridine preparation and properties.	to 13.04.2022	3hrs 3hrs		
Unit – IV Content – 9 Hrs Assessment-3 Hrs Total- 12 Hrs	Surface Chemistry 1.Colloids, Emulsions, gels- preparation, properties and applications. 2.Electrophoresis, chromatography- column, paper and thin layer chromatography 3.Photochemistry Laws of photochemistry and applications.	27.04.2022 to 05.05.2022	3hrs 3hrs 3hrs		
Unit – V Content – 9 Hrs Assessment-3 Hrs Total- 12 Hrs	1.Identification of Organic Compounds - Phenol, Carbohydrate, Amine, Amide, Aldehyde, Ketone and Carboxylic acid. 2.pH and Buffer - Importance of pH and buffers in living systems 3. pH determination by colorimetric and electrometric methods.	06.05.2022 to 17.05.2022	3hrs 3hrs 3hrs		

D. ACTIVITIES

Activities Name	Details
Test	Monthly Test- Unit-I& II (March) CIA / Mid Semester – Unit-I ,II & Unit-III (first ½ portion) - 2 ½ Unit(March) CIA / Model Examination -Unit-III(Second 1/2 Unit) , Unit IV&Unit-V- 2 ½ Units(April)
Assignment	Assignment I –Unit –I and Unit –II (March) Assignment II – Unit –III and Unit – IV (April)
Quiz	Two Mark Quiz Test - Unit I to Unit – V (May)
Seminar	Unit –V (April)
Tutorial Ward Meeting	Monthly once



PRINCIPAL

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A. GENERAL INFORMATION

Name of the Faculty	: R.MAHESWARI
Department	: Chemistry
Programme	: II B.Sc.,
Programme Code	: USC
Name of the Paper	: Allied Chemistry Practical Zoology
Lecture Hours / Practical Hours	: 2Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">• To perform the qualitative analysis of a given organic mixture	<ul style="list-style-type: none">• To provide training on volumetric analysis• To acquire knowledge about organic compounds	<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
Volumetric Analysis – Basic Concepts	4.3.2022	-	3 Hrs	
Volumetric Analysis - Concentrations Units			3Hrs	
Procedure Given			3hrs	
Estimation of Hydrochloric acid	14.3.2022 to 7.4.2022		3Hrs	
Estimation of Sodium Hydroxide		-	3Hrs	
Estimation of Oxalic acid			3Hrs	-
Estimation of Ferrous ion	27.4.2022 to 6.5.2022		3Hrs	
Estimation of Copper Sulphate		-	3Hrs	
Estimation of Potassium permanganate			3Hrs	
Organic Analysis – Basic principles.	7.5.2022 to 17.5.2022		3 hrs	
Organic Analysis – I			3hrs	
Organic Analysis – II			3hrs	
Organic Analysis – III			3hrs	
Organic Analysis – IV			3hrs	
Organic Analysis – V			3hrs	
Organic Analysis – VI			3hrs	
Organic Analysis –VII			3hrs	

ACTIVITIES:

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	4.3.2022 to 17.5.2022



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : Mrs.M.Sivagamasundari
Department : Chemistry
Programme : B.Sc
Programme Code : USC
Name of the Paper : Allied Chemistry Practical (Physics)
Lecture Hours / Practical Hours : 2Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
		<ul style="list-style-type: none">• Students has to be in time for the laboratory• Students are not allowed into the lab without prepared Observation Note.• A student has to complete the practical and calculations at the stipulated time give to them.• Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

C.PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
-	Volumetric Analysis – Basic Concepts	12.08.2021 to 19.08.2021	-	2 Hrs	-
	Volumetric Analysis - Concentrations Units		-	2Hrs	
	Procedure Given Estimation of Hydrochloric acid	06.09.2021 to 27.10.2021	-	2hrs	
	Estimation of Sodium Hydroxide			2hrs	
	Estimation of Oxalic acid			2hrs	
	Estimation of Ferrous ion	09.11.2021 to 02.12.2021		2hrs	
	Estimation of Copper Sulphate			2hrs	
	Estimation of Potassium permanganate			2hrs	
	Organic Analysis – Basic principles.	28.02.2021 to 20.04.2021		2hrs	
	Organic Analysis – I			2hrs	
	Organic Analysis – II			2hrs	
	Organic Analysis – III			2hrs	
	Organic Analysis – IV				
	Organic Analysis – V				
	Organic Analysis – VI				
	Organic Analysis –VII				

D.ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	01.03.2021 to 13.03.2021



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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	: Mrs. A. Rakini
Department	: Chemistry
Programme	: B.Sc
Programme Code	: QUA2Y
Name of the Paper	: Allied Chemistry Practical (Biochemistry & Geology)
Lecture Hours / Practical Hours	: Even- 3 Hrs / Week / Practical Hours

B. ABOUT THE COURSE

Course Objectives	Course Outcomes	Practical Methodology
<ul style="list-style-type: none">To perform the qualitative analysis of a given organic mixture	<ul style="list-style-type: none">To provide training on volumetric analysisTo acquire knowledge about organic compounds	<ul style="list-style-type: none">Students has to be in time for the laboratoryStudents are not allowed into the lab without prepared Observation Note.A student has to complete the practical and calculations at the stipulated time give to them.Students have to receive the signature in the observation note on the same day or on or before entering the next practical class.

C. PLAN OF THE WORK

Unit / Modules	Topic to be covered	Proposed date	Lecture Hours	Practical Hours	Remarks
	Volumetric Analysis – Basic Concepts	12.08.2021		2 Hrs	
	Volumetric Analysis - Concentrations Units	to 18.08.2021		2Hrs	
	Procedure Given			2hrs	
	Estimation of Hydrochloric acid	06.09.2021		2Hrs	
	Estimation of Sodium Hydroxide	1 to 02.11.2021	-	2Hrs	-
	Estimation of Oxalic acid			2Hrs	
	Estimation of Ferrous ion	09.11.2021		2Hrs	
	Estimation of Copper Sulphate	1 to 02.12.2021	-	2Hrs	
	Estimation of Potassium permanganate			2Hrs	
	Organic Analysis – Basic principles.	28.02.2022		3hrs	
	Organic Analysis – I	2 to 20.04.2022		3 hrs	
	Organic Analysis – II	2		3 hrs	
	Organic Analysis – III			3 hrs	
	Organic Analysis – IV			3 hrs	
	Organic Analysis – V			3 hrs	
	Organic Analysis – VI			3 hrs	
	Organic Analysis –VII			3 hrs	

D. ACTIVITIES

Activities Name	Details
Repetition Class Observation Correction Record Correction Mid Semester Model Practical	21 .04.2022 to 16.05.2022



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