

E.M. GOPALAKRISHNA KONE YADAVA WOMEN'S COLLEGE

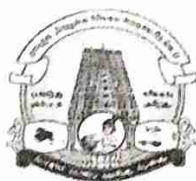
**An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited (3rd Cycle) with Grade A⁺ & CGPA 3.51 by NAAC**



**LESSON PLAN
2023-2024**

DEPARTMENT OF ZOOLOGY

(UG – Odd & Even Semester)-Allied Chemistry



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LESSON PLAN

2023-2024

Class : I B.Sc Zoology

Sem : I

Sub. Code : 23OUZOGECH1

Title of the Paper: CHEMISTRY FOR BIOLOGICAL SCIENCES I

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	I	Chemical Bonding: Molecular Orbital Theory-bonding, antibonding and non-bonding orbitals. Molecular orbital diagrams for Hydrogen, Helium, Nitrogen; discussion of bond order and magnetic properties. Nuclear Chemistry: Fundamental particles - Isotopes, Isobars, Isotones and Isomers-Differences between chemical reactions and nuclear reactions - group displacement law. Nuclear binding energy - mass defect - calculations. Nuclear fission and nuclear fusion - differences - Stellar energy. Applications of radioisotopes - carbon dating, rock dating and medicinal applications.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	C. G. S.
August	II	Fuels: Fuel gases: Natural gas, water gas, semi water gas, carbureted water gas, producer gas, CNG, LPG and oil gas (manufacturing details not required). Silicones: Synthesis, properties and uses of silicones. Fertilizers: Urea, ammonium sulphate, potassium nitrate, NPK fertilizer, superphosphate, triple superphosphate.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	C. G. S.
sep	III	Hybridization: Orbital overlap, hybridization and geometry of CH ₄ , C ₂ H ₄ , C ₂ H ₂ and C ₆ H ₆ . Electronic effects: Inductive effect and consequences on K _a and K _b of organic acids and bases,	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	C. G. S.

		electromeric, mesomeric, hyper conjugation and steric- examples. Reaction mechanisms: Types of reactions—aromaticity (Huckel's rule) – aromatic electrophilic substitution; nitration, halogenation, Friedel- Craft's alkylation and acylation. Heterocyclic compounds: Preparation, properties of pyrrole and pyridine.				
Oct	IV	Drugs and Speciality Chemicals: Definition, structure and uses: Antibiotics viz., Penicillin, Chloramphenicol and Streptomycin; Anaesthetics viz., Chloroform and ether; Antipyretics viz., aspirin, paracetamol and ibuprofen; Artificial Sweeteners viz., saccharin, Aspartame and cyclamate; Organic Halogen compounds viz., Freon, Teflon.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>c-bansal</i>
Nov	V	Analytical Chemistry: Introduction to qualitative and quantitative analysis. Principles of volumetric analysis. Separation and purification techniques – extraction, distillation and crystallization. Chromatography: principle and application of column, paper and thin layer chromatography.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>c-bansal</i>

c-bansal
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A. K. Kalia
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LESSON PLAN

2023-2024


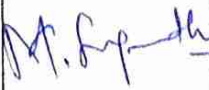

Class : I B.Sc Mathematics

Sem : I

Sub. Code : 23OUMAGECH1

Title of the Paper: CHEMISTRY FOR PHYSICAL SCIENCES I

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	I	Chemical Bonding: Molecular Orbital Theory- bonding, antibonding and non-bonding orbitals. Molecular orbital diagrams for Hydrogen, Helium, Nitrogen; discussion of bond order and magnetic properties. Nuclear Chemistry: Fundamental particles - Isotopes, Isobars, Isotones and Isomers-Differences between chemical reactions and nuclear reactions - group displacement law. Nuclear binding energy - mass defect - calculations. Nuclear fission and nuclear fusion - differences - Stellar energy. Applications of radioisotopes - carbon dating, rock dating and medicinal applications.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	
August	II	Fuels: Fuel gases: Natural gas, water gas, semi water gas, carbureted water gas, producer gas, CNG, LPG and oil gas (manufacturing details not required). Silicones: Synthesis, properties and uses of silicones. Fertilizers: Urea, ammonium sulphate, potassium nitrate, NPK fertilizer, superphosphate, triple superphosphate.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	
sep	III	Hybridization: Orbital overlap, hybridization and geometry of CH ₄ , C ₂ H ₄ , C ₂ H ₂ and C ₆ H ₆ . Electronic effects: Inductive effect and consequences on K _a and K _b of organic acids and bases, electromeric, mesomeric,	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	

		hyper conjugation and steric- examples. Reaction mechanisms: Types of reactions—aromaticity (Huckel's rule) – aromatic electrophilic substitution; nitration, halogenation, Friedel- Craft's alkylation and acylation. Heterocyclic compounds: Preparation, properties of pyrrole and pyridine.				
Oct	IV	Thermodynamics: Types of systems, reversible and irreversible processes, isothermal and adiabatic processes and spontaneous processes. Statements of first law and second law of thermodynamics. Carnot's cycle and efficiency of heat engine. Entropy and its significance. Free energy change and its importance (no derivation). Conditions for spontaneity in terms of entropy and Gibbs free energy. Relationship between Gibbs free energy and entropy. Phase Equilibria: Phase rule - definition of terms in it applications of phase rule to water system. Two component system - Reduced phase rule and its application to a simple eutectic system (Pb-Ag).	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	M.S.P.
Nov	V	Analytical Chemistry: Introduction to qualitative and quantitative analysis. Principles of volumetric analysis. Separation and purification techniques – extraction, distillation and crystallization. Chromatography: principle and application of column, paper and thin layer chromatography.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	M.S.P.


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LESSON PLAN

2023-2024

Class : I B.Sc Mathematics

Sem : I


Sub. Code : 23OUMAGECH1P

Title of the Paper: Chemistry Practical for Physical Sciences -I

Total Hours : 60

Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution	I B.Sc Maths	12	Demonstration, Chalk and Talk, Discussion	M. Gopalakrishnan
August	Estimation of Na_2CO_3 for 2 batches Estimation of Mohr's salt for 2 batches	I B.Sc Maths	12	Demonstration, Chalk and Talk, Discussion	M. Gopalakrishnan
sep	Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches	I B.Sc Maths	12	Demonstration, Chalk and Talk, Discussion	M. Gopalakrishnan
Oct	Estimation of FeSO_4 for 2 batches Estimation of $\text{C}_2\text{H}_2\text{O}_4$ for 2 batches	I B.Sc Maths	12	Demonstration, Chalk and Talk, Discussion	M. Gopalakrishnan
Nov	Revision for 2 batches Model test for 2 batches	I B.Sc Maths	12	Demonstration, Chalk and Talk, Discussion	M. Gopalakrishnan


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LESSON PLAN
2023-2024

Class : I B.Sc Zoology

Sem : I

Sub. Code : 23OUZOGECH1P

Title of the Paper: Chemistry Practical for Biological Sciences -I

Total Hours : 60

Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. K. S. S.</i>
August	Estimation of Na_2CO_3 for 2 batches Estimation of Mohr's salt for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. K. S. S.</i>
sep	Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. K. S. S.</i>
Oct	Estimation of FeSO_4 for 2 batches Estimation of $\text{C}_2\text{H}_2\text{O}_4$ for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. K. S. S.</i>
Nov	Revision for 2 batches Model test for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. K. S. S.</i>

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LESSON PLAN

2023-2024

Class : II B.Sc Zoology & Mathematics

Sem : III

Sub. Code : 22OUZOGECH3

Title of the Paper: Chemistry–III- IndustrialChemistry

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	I	Match industry: Introduction -composition- types of matches-raw materials need for safety matches- manufacturing process. Pyrotechnic: Introduction-composition of fireworks- colored smokes Explosives: Introduction- preparation and uses of cordite and RDX.	II B.Sc Zoology	10	Chalk and Talk Seminar, Group Discussion	M. S. Senthil
August	II	Silicate Industry: Cement: Introduction- composition of cement- raw materials need for manufacturing of Portland cement-manufacture of Portland cement by wet process and dry process- role of gypsum in the setting of cement. Glass: Introduction- characteristics of glass- physical and chemical properties- manufacture of glass (tank furnace method)-annealing- characteristics of Borosilicate glass, optical glass, colored glass, safety glass.	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	M. S. Senthil
sep	III	Agricultural Chemistry: Fertilizer: Introduction- classification- role of various elements in plant growth- requirements of a good fertilizer-	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	M. S. Senthil

		Manufacturing methods and applications of following fertilizers: ammonium sulphate, ammonium chloride, urea, super phosphate of lime, calcium cyanamide, calcium ammonium nitrate and NPK fertilizer.				
Oct	IV	Polymer Chemistry and Rubber: Introduction-composition of natural rubber-occurrence and isolation of natural rubber - draw backs of raw rubber- vulcanization-properties of vulcanized rubber- synthetic rubber-preparation and applications of SBR rubber, neoprene rubber, butyl rubber and Thiokol-Distinction between natural rubber and synthetic rubber	II B.Sc Zoology	13	Chalk and Talk Seminar, Group Discussion	<i>M. S. S.</i>
Nov	V	Plastics and Paper Industry: Plastics: Introduction-characteristics of plastics-classification of plastics-differences between thermo setting and thermo plastics-preparation and applications of Bakelite, Polythene, PVC, Polypropylene, Poly Styrene and Urea formaldehyde resin. Differences between plastics and resins. Paper industry: Introduction-raw materials and manufacturing process of paper- types of paper-paper industry in India.	II B.Sc Zoology	13	Chalk and Talk Seminar, Group Discussion	<i>M. S. S.</i>

e. kumar
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LESSON PLAN

2023-2024

Class : II B.Sc Zoology & Mathematics

Sem : III

Sub. Code : 22OUMAGECH3

Title of the Paper: Chemistry-III- Industrial Chemistry

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
July	I	Match industry: Introduction -composition- types of matches-raw materials need for safety matches- manufacturing process. Pyrotechnic: Introduction-composition of fireworks- colored smokes. Explosives: Introduction- preparation and uses of cordite and RDX.	II B.Sc Maths	10	Chalk and Talk Seminar, Group Discussion	<i>c. b. b.</i>
August	II	Silicate Industry: Cement: Introduction- composition of cement- raw materials need for manufacturing of Portland cement-manufacture of Portland cement by wet process and dry process- role of gypsum in the setting of cement. Glass: Introduction- characteristics of glass- physical and chemical properties- manufacture of glass (tank furnace method)-annealing- characteristics of Borosilicate glass, optical glass, colored glass, safety glass.	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. b. b.</i>
sep	III	Agricultural Chemistry: Fertilizer: Introduction- classification- role of various elements in plant growth- requirements of a good fertilizer-	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. b. b.</i>

		Manufacturing methods and applications of following fertilizers: ammonium sulphate, ammonium chloride, urea, super phosphate of lime, calcium cyanamide, calcium ammonium nitrate and NPK fertilizer.				
Oct	IV	Polymer Chemistry and Rubber: Introduction-composition of natural rubber-occurrence and isolation of natural rubber - draw backs of raw rubber-vulcanization-properties of vulcanized rubber-synthetic rubber-preparation and applications of SBR rubber, neoprene rubber, butyl rubber and Thiokol-Distinction between natural rubber and synthetic rubber	II B.Sc Maths	13	Chalk and Talk Seminar, Group Discussion	<i>C. Kumbhar</i>
Nov	V	Plastics and Paper Industry: Plastics: Introduction-characteristics of plastics-classification of plastics- differences between thermo setting and thermo plastics-preparation and applications of Bakelite, Polythene, PVC, Polypropylene, Poly Styrene and Urea formaldehyde resin. Differences between plastics and resins. Paper industry: Introduction-raw materials and manufacturing process of paper- types of paper-paper industry in India.	II B.Sc Maths	13	Chalk and Talk Seminar, Group Discussion	<i>C. Kumbhar</i>

C. Kumbhar
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LESSON PLAN

2023-2024

Class : I B.Sc Zoology

Sem : II

Sub. Code : 23OUZOGECH2

Title of the Paper: CHEMISTRY FOR BIOLOGICAL SCIENCES II

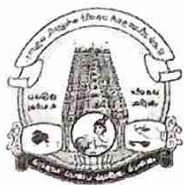
Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Co-ordination Chemistry and Water Technology Co-ordination Chemistry: Definition of terms - IUPAC Nomenclature- Werner's theory - EAN rule - Pauling's theory - Postulates - Applications to $[\text{Ni}(\text{CO})_4]$, $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{Co}(\text{CN})_6]^{3-}$ Chelation - Biological role of Hemoglobin and Chlorophyll (elementary idea) - Applications in qualitative and quantitative analysis. Water Technology: Hardness of water, determination of hardness of water using EDTA method, zeolite method - Purification techniques - BOD and COD.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>C. Kumar</i>
Feb	II	Carbohydrates Classification, preparation and properties of glucose and fructose. Discussion of open chain ring structures of glucose and fructose. Glucose-fructose interconversion. Preparation and properties of sucrose, starch and cellulose.	I B.Sc Zoology	11	Chalk and Talk Seminar, Group Discussion	<i>C. Kumar</i>
March	III	Amino Acids and Essential elements of biosystem Classification - preparation and properties of alanine, preparation of dipeptides using Bergmann method - Proteins - classification - structure - Colour reactions - Biological functions - nucleosides - nucleotides - RNA and DNA - structure. Essentials of trace metals in biological system - Na, Cu, K, Zn, Fe, Mg.	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>C. Kumar</i>

April	IV	Electrochemistry Galvanic cells - Standard hydrogen electrode - calomel electrode - standard electrode potentials - electrochemical series. Strong and weak electrolytes - ionic product of water - pH, pKa, pKb. Conductometric titrations - pH determination by colorimetric method - buffer solutions and its biological applications - electroplating - Nickel and chrome plating - Types of cells - fuel cells - corrosion and its prevention.	I B.Sc Zoology	13	Chalk and Talk Seminar, Group Discussion	<i>c. b. m. b.</i>
May	V	Photochemistry Grothus - Drapper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield - Hydrogen - chloride reaction. Phosphorescence, fluorescence, chemiluminescence and photosensitization and photosynthesis (definition with examples).	I B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>c. b. m. b.</i>

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LESSON PLAN
2023-2024

Class : I B.Sc Mathematics

Sem : II

Sub. Code : 23OUMAGECH2

Title of the Paper: CHEMISTRY FOR PHYSICAL SCIENCES II

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Co-ordination Chemistry and Water Technology Co-ordination Chemistry: Definition of terms - IUPAC Nomenclature- Werner's theory - EAN rule - Pauling's theory – Postulates - Applications to $[\text{Ni}(\text{CO})_4]$, $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{Co}(\text{CN})_6]^{3-}$ Chelation - Biological role of Hemoglobin and Chlorophyll (elementary idea) -Applications in qualitative and quantitative analysis. Water Technology: Hardness of water, determination of hardness of water using EDTA method, zeolite method-Purification techniques –BOD and COD.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>M. Gyanthar</i>
Feb	II	Carbohydrates and Amino acids Carbohydrates: Classification, preparation and properties of glucose, fructose and sucrose. Discussion of open chain ring structures of glucose and fructose. Glucose – fructose interconversion. Properties of starch and cellulose. Amino acids: Classification - preparation and properties of alanine, preparation of dipeptides using Bergmann method. RNA and DNA (elementary idea only).	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>M. Gyanthar</i>

March	III	Electrochemistry Galvanic cells - Standard hydrogen electrode - calomel electrode - standard electrode potentials - electrochemical series. Strong and weak electrolytes - ionic product of water - pH, pKa, pKb. Conductometric titrations - pH determination by colorimetric method - buffer solutions and its biological applications - electroplating - Nickel and chrome plating - Types of cells - fuel cells - corrosion and its prevention.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	M. S. P. S.
April	IV	Kinetics and Catalysis Order and molecularity. Integrated rate expression for I and II (2A → Products) order reactions. Pseudo first order reaction, methods of determining order of a reaction - Half-life period - Catalysis - homogeneous and heterogeneous, catalyst used in Contact and Haber's processes. Concept of energy of activation and Arrhenius equation.	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	M. S. P. S.
May	V	Photochemistry Grothus - Drapper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield - Hydrogen - chloride reaction. Phosphorescence, fluorescence, chemiluminescence and photosensitization and photosynthesis (definition with examples).	I B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	M. S. P. S.


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LESSON PLAN

2023-2024

Class : I B.Sc Mathematics

Sem : II

Sub. Code : 23OUMAGECH2P

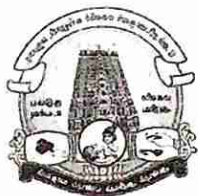
Title of the Paper: Chemistry Practical for Physical Sciences -II

Total Hours : 60

Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	Instruction Demonstration for Detection of special elements, Aromatic and aliphatic nature, Test for saturation and unsaturation	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
Feb	Identification of functional groups for 2 batches Derivative preparation for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
March	Analysis of organic salt - I for 2 batches Analysis of organic salt - II for 2 batches Analysis of organic salt - III for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
April	Analysis of organic salt - IV for 2 batches Analysis of organic salt - V for 2 batches Analysis of organic salt - VI for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
May	Revision for 2 batches Model test for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	

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LESSON PLAN

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Class : I B.Sc Zoology

Sem : II

Sub. Code : 23OUZOGECH2P

Title of the Paper: Chemistry Practical for Biological Sciences -II

Total Hours : 60

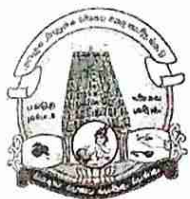
Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	Instruction Demonstration for Detection of special elements, Aromatic and aliphatic nature, Test for saturation and unsaturation	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. Kumar</i>
Feb	Identification of functional groups for 2 batches Derivative preparation for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. Kumar</i>
March	Analysis of organic salt – I for 2 batches Analysis of organic salt – II for 2 batches Analysis of organic salt – III for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. Kumar</i>
April	Analysis of organic salt – IV for 2 batches Analysis of organic salt – V for 2 batches Analysis of organic salt – VI for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. Kumar</i>
May	Revision for 2 batches Model test for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	<i>C. Kumar</i>

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LESSON PLAN

2023-2024

Class : II B.Sc Zoology & Mathematics

Sem : IV

Sub. Code : 22OUZOGECH4

Title of the Paper: Chemistry –IV - Medicinal, Green & Nano Chemistry

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Anaesthetics, Analgesics and Antipyretics: Anaesthetics: Definition-characteristics-classification-application of nitrous oxide, chloroform and cocaine. Analgesics: Definition-mode of action-specific applications of antipyrine, aspirin, ibuprofen. Antipyretics: Definition-mode of action-medicinal uses of salol and paracetamol.	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>M. G. K.</i>
Feb	II	Sulpha Drugs, Antibiotics and Antiseptics: Sulpha drugs: Definition-mode of action-applications of sulphanilamide, sulphapyridine and sulphadiazine. Antibiotics: Definition- characteristics-mode of action- structure and uses of the following antibiotics- penicillins, streptomycin, chloramphenicol, erythromycin and tetracyclins. Antiseptics: Definition-types of antiseptics-difference between antiseptic and disinfectant.	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	<i>M. G. K.</i>
March	III	Hypnotics, Sedatives and Tranquilizers: Hypnotics and Sedatives: Definition - types (alcohols-aldehydes, ketones and sulphones-	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	

		urethans- amides and urea-barbiturates) - applications of chloral, paraldehyde, sulphonal and barbituric acid. Tranquilizer. Definition-characteristics-classification-applications of piperadol and hydroxyzine.				M. S. P. - HOD
April	IV	Green Chemistry: Need for Green chemistry- Goals of Green chemistry- Limitations/Obstacles- The progress of Green chemistry- Twelve principles of Green chemistry- Concept of Atom economy (Rearrangement reactions, Addition reactions, Substitution reactions and Elimination reactions)- Concept of selectivity (Chemoselectivity, Regioselectivity, Enantioselectivity and Diastereoselectivity)	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	M. S. P. - HOD
May	V	Nano Chemistry: Characterisation of Nano materials-Stability of Colloidal solutions- Synthesis of metal Nanoparticles by physical methods (Laser Ablation, Physical Vapour Deposition (Evaporation and Sputtering) - Synthesis by chemical methods (Thermolysis, Sonochemical Approach, Reduction by hydrogen, and Alkali metal reductions)-Biosynthesis of Nanoparticles.	II B.Sc Zoology	12	Chalk and Talk Seminar, Group Discussion	M. S. P. - HOD

C. Kumar

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Class : II B.Sc Zoology & Mathematics

Sem : IV

Sub. Code : 22OUMAGECH4

Title of the Paper: Chemistry -IV - Medicinal, Green & Nano Chemistry

Total Hours : 60

Month	Unit	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Anaesthetics, Analgesics and Antipyretics: Anaesthetics: Definition-characteristics-classification-application of nitrous oxide, chloroform and cocaine. Analgesics: Definition-mode of action-specific applications of antipyrine, aspirin, ibuprofen. Antipyretics: Definition-mode of action-medicinal uses of salol and paracetamol.	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. kumar</i>
Feb	II	Sulpha Drugs, Antibiotics and Antiseptics: Sulpha drugs: Definition-mode of action-applications of sulphanilamide, sulphapyridine and sulphadiazine. Antibiotics: Definition-characteristics-mode of action-structure and uses of the following antibiotics- penicillins, streptomycin, chloramphenicol, erythromycin and tetracyclins. Antiseptics: Definition-types of antiseptics-difference between antiseptic and disinfectant.	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. kumar</i>
March	III	Hypnotics, Sedatives and Tranquilizers: Hypnotics and Sedatives: Definition-types (alcohols-aldehydes, ketones and sulphones-urethans- amides and urea-	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. kumar</i>

		barbiturates) - applications of chloral, paraldehyde, sulphonal and barbituric acid. Tranquilizer: Definition-characteristics-classification-applications of piperadol and hydroxyzine.				
April	IV	Green Chemistry: Need for Green chemistry- Goals of Green chemistry- Limitations/Obstacles- The progress of Green chemistry-Twelve principles of Green chemistry-Concept of Atom economy (Rearrangement reactions, Addition reactions, Substitution reactions and Elimination reactions)- Concept of selectivity (Chemoselectivity, Regioselectivity, Enantioselectivity and Diastereoselectivity)	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. banel</i>
May	V	Nano Chemistry: Characterisation of Nano materials-Stability of Colloidal solutions- Synthesis of metal Nanoparticles by physical methods (Laser Ablation, Physical Vapour Deposition (Evaporation and Sputtering) - Synthesis by chemical methods (Thermolysis, Sonochemical Approach, Reduction by hydrogen, and Alkali metal reductions)-Biosynthesis of Nanoparticles.	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	<i>c. banel</i>

c. banel

Signature of the HOD

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Signature of the Principal (i/c)



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Re-accredited (3rd Cycle) with Grade A⁺ and CGPA 3.51 by NAAC

LESSON PLAN

2023-2024

Class : II B.Sc Zoology & Mathematics

Sem : III & IV

Sub. Code : 22OUZOGCH4P

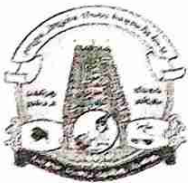
Title of the Paper: Practical -II Volumetric Analysis

Total Hours : 60

Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution	II B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	
Feb	Estimation of Na ₂ CO ₃ for 2 batches Estimation of Mohr's salt for 2 batches	II B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	
March	Estimation of KMnO ₄ for 2 batches Estimation of NaOH for 2 batches	II B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	
April	Estimation of FeSO ₄ for 2 batches Estimation of C ₂ H ₂ O ₄ for 2 batches	II B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	
May	Revision for 2 batches Model test for 2 batches	II B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	

Signature of the HOD

Signature of the Principal (t/c) .



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LESSON PLAN

2023-2024

Class : II B.Sc Zoology & Mathematics

Sem : III & IV

Sub. Code : 22OUMAGECH4P

Title of the Paper: Practical -II Volumetric Analysis

Total Hours : 60

Month	Description of the Syllabus	Class	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	<i>c. b. b.</i>
Feb	Estimation of Na_2CO_3 for 2 batches Estimation of Mohr's salt for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	<i>c. b. b.</i>
March	Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	<i>c. b. b.</i>
April	Estimation of FeSO_4 for 2 batches Estimation of $\text{C}_2\text{H}_2\text{O}_4$ for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	<i>c. b. b.</i>
May	Revision for 2 batches Model test for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	<i>c. b. b.</i>

c. b. b.

Signature of the HOD

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Signature of the Principal (IC)