



E.M.GOPALAKRISHNAKONEYADAVAWOMEN'S COLLEGE
 An Autonomous Institution –Affiliated to Madurai Kamaraj University
 Re-accredited(3rd Cycle)with Grade A⁺ and CGPA3.51byNAAC

LESSON PLAN

2024-2025

Class : I B.Sc Zoology

Sem : I

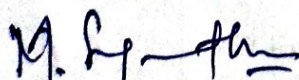
Sub. Code : 23OUZOGECH1

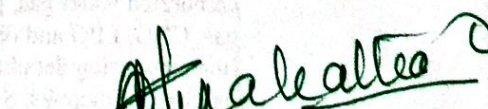
Title of the Paper: CHEMISTRY FOR BIOLOGICAL SCIENCES I

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	
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	
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	

		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	
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	


Signature of the HOD


Signature of the Principal (i/c)



E.M.GOPALAKRISHNAKONEYADAWOMEN'S COLLEGE
An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited(3rd Cycle)with Grade A⁺ and CGPA3.51by NAAC

LESSON PLAN

2024-2025

Class : I B.Sc Mathematics

Sem : I

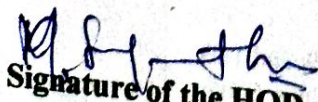
Sub. Code : 23OUMAGECH1

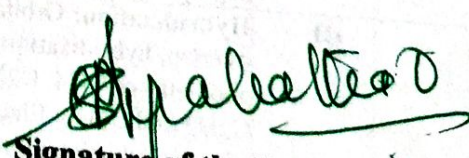
Title of the Paper: CHEMISTRY FOR PHYSICAL SCIENCES I

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	
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	


Signature of the HOD


Signature of the Principal (i/c)



E.M.GOPALAKRISHNAKONEYADAWOMEN'S COLLEGE
An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited(3rd Cycle)with Grade A⁺ and CGPA 3.51 by NAAC

LESSON PLAN

2024-2025

Class : I B.Sc Zoology

Sem : I

Sub. Code : 23OUZOGCH1P

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	
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	
sep	Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	
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	
Nov	Revision for 2 batches Model test for 2 batches	I B.Sc Zoology	12	Demonstration , Chalk and Talk, Discussion	

Signature of the HOD

Signature of the Principal (i/c)



E.M.GOPALAKRISHNAKONEYADAVAWOMEN'SCOLLEGE
An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited(3rd Cycle)with Grade A⁺ and CGPA 3.51 by NAAC

LESSON PLAN

2024-2025

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	
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	
sep	Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
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	
Nov	Revision for 2 batches Model test for 2 batches	I B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	

Signature of the HOD

Signature of the Principal (i/c)



E.M.GOPALAKRISHNAKONEYADAVAWOMEN'S COLLEGE
 An Autonomous Institution -Affiliated to Madurai Kamaraj University
 Re-accredited(3rd Cycle)with Grade A⁺ and CGPA 3.51 by NAAC

LESSON PLAN

2024-2025

Class : II B.Sc Mathematics

Sem : III

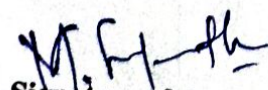
Sub. Code : 23OUMAGECH3

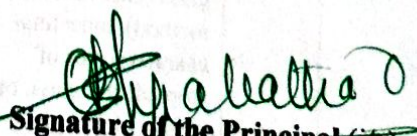
Title of the Paper: Chemistry for Physical Sciences -III

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	
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	
sep	III	Industrial Organic Compounds: Preparation and uses of some Important Organic Compounds -Saccharin, Salicylic acid, Aspirin, Salol and Picric acid. Manufacture and uses of some Industrial organic	II B.Sc Maths	12	Chalk and Talk Seminar, Group Discussion	

		compounds -Alcoholic beverages (Beer and wine), Absolute alcohol, n-butyl alcohol, vinegar and lactic acid.				
Oct	IV	Rubber Chemistry: 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	✓
Nov	V	Polymer and Paper Chemistry: Plastics: Introduction-characteristics of plastics-classification of plastics-differences between thermo setting and thermo plastics-preparation and applications of Bakelite, 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	✓


Signature of the HOD


Signature of the Principal (i/c)



E.M.GOPALAKRISHNAKONEYADAVAWOMEN'S COLLEGE
An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited(3rd Cycle)with Grade A⁺ and CGPA 3.51 by NAAC

LESSON PLAN

2024-2025

Class : II B.Sc Mathematics

Sem : III

Sub. Code : 23OUMAGECH3P

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

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	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
August	Estimation of Sodium oxalate for 2 batches Estimation of Ferrous ammonium sulphate for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
sep	Estimation of Oxalic acid for 2 batches Estimation of Ferric alum for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
Oct	Estimation of Copper in copper sulphate for 2 batches Estimation of Chloride in barium chloride for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	
Nov	Revision for 2 batches Model test for 2 batches	II B.Sc Maths	12	Demonstration , Chalk and Talk, Discussion	

Signature of the HOD

Signature of the Principal (i/c)