

Teaching Plan for the Academic Session 2022-2023

DEPARTMENT OF CHEMISTRY

1st SEMESTER(Core & General)

NAME OF THE TEACHER	TOPIC (Core)	NO.OF CLASSES (Theory)	Practical Topic	No. of Practical Classes
Dr. Manoj Majumder	Basic Organic Chemistry			
	Organic Compounds: Hybridization etc	5		
	Electronic Displacements and Dipole moments	5		
Dr. Santanu Charavorty	MO theory	5	Purification of organic compounds by crystallization	2
	Reaction thermodynamics	5		
	Tautomerism	5	Determination of the melting points	2
	Stereochemistry-I		Identification of a Pure Organic Compound Solid compounds	4
	Different types of Projection	5		
	Optical Isomerism	5		
Chirality, elements of Symmetry and Stereoisomerism	5	Identification of a Pure Organic Compound Liquid compounds	4	
Dr. Chanchal Mondal	Gaseous state		Surface tension measurements using stalagmometer	4
	Kinetic molecular model of a gas	7		
	Maxwell distribution and its use	7	Viscosity measurement using Ostwald's viscometer	
	Behaviour of real gases	6		
	Liquid state			
	Qualitative treatment of the structure of the liquid state, Surface tension etc	5		
Viscosity	5			
Dr Manoj Majumder	Ionic equilibria		pH metry	8
	Strong, moderate and weak electrolytes, degree of ionization	10		
	Solubility and solubility product and Indicators	10		
Dr. Manoj Majumder Dr. Chanchal Mondal Dr. Santanu Chakravorty	TOPIC (DSC/GE)	90		24
	Atomic Structure	10	Inorganic Volumetric Analysis	3
	Chemical Bonding and Molecular Structure	10		
	Fundamental Organic Chemistry	5	Detection of Special Elements	3
	Aliphatic Hydrocarbons	5		
Total Classes	120		30	

Teaching Plan for the Academic Session 2022-2023

DEPARTMENT OF CHEMISTRY
3rd SEMESTER (Core, PROGRAMME & SEC COURSE)

NAME OF THE TEACHER	TOPIC	NO.OF CLASSES (Theory)	Practical Topic	Practical Classes
Dr. Santanu Chakravorty	Carbonyl Compounds Structure, reactivity and preparations	4	Organic preparations	
	Addition reactions of unsaturated carbonyl compounds	7	Acetylation of Amines and Phenols	3
	Organometallics Grignard reagent; Organolithiums; Gilman cuprates	7	Benzoylation of Amines and Phenols	3
	Carboxylic Acids and their Derivatives Preparation, physical properties and reactions of monocarboxylic acids	7	Semicarbazone preparation	3
	Preparation and reactions of acid chlorides, anhydrides, esters and amides	3		
	Nitrogen Containing Functional Groups Preparation and important reactions of nitro and compounds, nitriles and isonitriles	3	Benzil-Benzilic acid rearrangement	1
	Amines	7		
	Polynuclear Hydrocarbons Reactions of naphthalene phenanthrene and anthracene and Structure determination	5		
	Sulphur containing compounds Preparation and reactions of thiols, thioethers and sulphonic acids	3		
	Dr. Chanchal Mondal	Chemical Thermodynamics: First law	5	
Thermochemistry		5		
Second Law & Free Energy Functions		7		
Systems of Variable Composition: Partial molar quantities and their significance, dependence of thermodynamic parameters on composition; Gibbs- Duhem equation etc		7	Determination of partition coefficient of two immiscible liquid pair	5
Chemical Equilibrium Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical		6	Determination of equilibrium constant	5
Dr. Manoj Majumdar	Solutions and Colligative Properties Dilute solutions; lowering of vapour pressure, Raoult's and Henry's Laws and their	8		
	General Principles of Metallurgy: Chief modes of occurrence of metals based on standard electrode potentials	4		
	Acids and Bases: Bronsted-Lowry concept of acid-base reactions, Lewis acids and bases, relative strength of	10	iodo / iodoimetric Titrations	5
	Chemistry of s and p Block Elements Chemistry of s and p Block Elements: Relative stability of different oxidation states, diagonal relationship and anomalous behaviour of first member of each group etc	16	Inorganic Preparations	5

	Noble Gases: Occurrence and uses, rationalization of inertness of noble gases, Clathrates	5		
	Inorganic Polymers: Types of inorganic polymers, comparison with organic polymers	3		

Fuel Chemistry (SEC-1)				
Coal:				
Dr. Manoj Majumdar	Uses of Coals	4		
Petroum and Ptrochmiccal Industry:				
Dr. Manoj Majumdar	Composition, refining of Petroleum	4		
Dr. Chanchal Mondal	Fractionall Distiltion of Petroleum	4		
Lubricants:				
Dr. Chanchal Mondal	Classification and Proprties of Lubricants	4		
DSC/GE Chemistry				
Dr. Chanchal Mondal	Solution	5	Conductance meaurments	5
Dr. Chanchal Mondal	Conductance	5		
Dr. Manoj Majumdar	Phase Equilibrium	6	Potentiometry	5
Dr. Manoj Majumdar	Electrochemistry	4		
Dr. Santanu Chakravorty	Carboxylic acid	3		
Dr. Santanu Chakravorty	Amines	3	Systematic Qualitative Organic Analysis of	5
Dr. Santanu Chakravorty	Carbohydrates and amino acids	4	Organic Compounds	
	Total Classes	168		45

Teaching Plan for the Academic Session 2021-2022

DEPARTMENT OF CHEMISTRY

5th SEMESTER (Core and Programm course)

NAME OF THE TEACHER	TOPIC	NO.OF CLASSES	Practical Topic	Practical Classes
Dr. Ssantanu Chakravorty	Pericyclic reactions			
	Mechanism, stereochemistry, regioselectivity in case of		Solid mixture	
	Electrocyclic reactions	4	separation	10
	Sigmatropic reactions	5		
	Cycloaddition reactions	4		
	Organic Spectroscopy			
	UV Spectroscopy	8		
	IR Spectroscopy	8		
	NMR Spectroscopy	10		
	Dyes			
	Classification, Colour and constitution	3		
Conductance				
Dr. Chanchal Mondal	Arrhenius theory of electrolytic dissociation. Conductivity, equivalent and molar conductivity		7 Conductometry	5
Dr. Chanchal Mondal	Quantitative aspects of Faraday's laws of electrolysis. Ionic velocities		7 Potentiometry	5
Electrochemistry				
Dr. Manoj Majumdar	based on half-cell potentials,	8		
Statistical Thermodynamics				
Dr. Chanchal Mondal	Probability, Thermodynamic	10		
Atoms and Molecules				
Dr. Chanchal Mondal	Electrostatics of dielectric media etc	10		
CHEMISTRY(DSE-1)				
Dr. Chancha Mondal	of analysis	8		
Optical methods of analysis				
	UV-Visible Spectrometry	4		
	Infrared Spectrometry	5		
	Emission Spectrometry	5		
Thermal methods of analysis				
Dr. Manoj Majumdar	basic principle of instrumentation	5	Extractions	3
Electroanalytical methods				
	methods, basic principle of pH metric, potentiometric and conductometri	6	Analysis of soil	2
Separation techniques				
	Solvent extraction	3		
	Chromatography	3		
	of chromatographic methods of	3		
INDUSTRIAL IMPORTANCE (DSE-2)				

Silicate Industries			
Dr. Manoj Majumdar	Glass	Determination of composition of dolomite (by complexometric titration).	5
	Ceramics		4
	Cements		5

0 Fertilizers

Dr. Santanu Chakravarty	Manufacture an uses		7
	Surface Coatings:		
Dr. Manoj Majumdar	Paints and Emulsion		7
	Alloys		
Dr. Manoj Majumdar	Classification of alloys and uses		7
	Catalysis		
Dr. Santanu Chakravorty	Phase transfer Catalysis		7

INDUSTRIAL IMPORTANCE (DSC)

Dr. Manoj Majumdar	Silicate Industries		
	Glass	Determination of composition of dolomite (by complexometric titration)	5
	Ceramics		2
	Cements		5
	Fertilizers		
	Different types of fertilizers.		
	Manufacture an uses		5
	Surface Coatings:		
Dr. Santanu Chakravorty	Paints and Emulsion		5
	Alloys		
	Classification of alloys and uses	Determination of composition of dolomite (by complexometric titration) for Practics	5
	Catalysis		
	Phase transfer Catalysis		5
	PESTICIDE CHEMISTRY (DSC)		
Dr. Chanchal Mondal	(natural and synthetic), benefits and	15 simple	5

Tota Classes

168

45