



MUGBERIA GANGADHAR MAHAVIDYALAYA

P.O.—BHUPATINAGAR, Dist.—PURBA MEDINIPUR, PIN.—721425, WEST BENGAL, INDIA

NAAC Re-Accredited B+Level Govt. aided College

CPE (Under UGC XII Plan) & NCTE Approved Institutions

DBT Star College Scheme Award Recipient

E-mail : mugberia_college@rediffmail.com // www.mugberiangangadharmahavidyalaya.ac.in

SYLLABUS DISTRIBUTION and TEACHING PLAN (CBCS & NEP) 2023-24

DEPARTMENT: CHEMISTRY

Mugberia Gangadhar Mahavidyalaya, Bhupatinagar, Purba Medinipur

Semester	Paper	Topic	Teacher's name	Total Credit	Total Allotted Marks	Weekly Class Hours	Total Class Hours
SEM-I	MJ1T (Organic Chemistry)	<u>Basics of Organic Chemistry –</u> 1. Bonding and Physical Properties 2. General Treatment of Reaction Mechanism	Dr. Bidhan Chandra Samanta	4	55 (T-40, CA -5, CIA -10)	2	35
		Stereochemistry – 1 (total)	Goutam Kumar Jana			2	25
	MJ1P (Organic Chemistry lab)	1. Separation of organic compound using solubility. 2. Boiling point of organic liquid compound. 3. Identification of a pure organic compound.	Goutam Kumar Jana	2	20	4	60
	MI-1T	1. Atomic structure 2. Chemical periodicity 3. Acid and bases 4. Redox reactions	Minakshi Maity	4	55 (T-40, CA -5, CIA -10)	2	30
		1. Fundamentals of organic chemistry 2. Stereochemistry 3. Nucleophilic substitution and Elimination Reactions 4. Aliphatic Hydrocarbons	Goutam Kumar Jana			1	30
MI-1P	1. Estimation of sodium carbonate and sodium hydrogen carbonate. 2. Estimation oxalic acid by KMnO ₄ .	Minakshi Maity					

		3. Estimation of water of crystallization in Mohr's salt by KMnO_4 . 4. Estimation of Fe(II) by $\text{K}_2\text{Cr}_2\text{O}_7$. 5. Estimation of Cu(II) by $\text{Na}_2\text{S}_2\text{O}_3$.		2		2	60
		1. Detection special element 2. Detection of functional groups	Dr. Bidhan Chandra Samanta			2	
SEM II	MJ2T (Inorganic Chemistry)	1. Extra nuclear structure of atom 2. Redox reactions and precipitation reactions.	Dr. Narottam Sutradhar		55 (T-40, CA - 5, CIA - 10)	2	36
		1. Chemical Periodicity 2. Acid – Base reactions.	Minakshi Maity	4		2	24
	MJ2P (Inorganic Chemistry lab)	1. Acid and Base Titrations 2. Oxidation – Reduction Titrimetric	Dr. Narottam Sutradhar	2	20	4	60
	MI-2T	Kinetic theory of gases and real gases	Ribhu Maity	4	55 (T-40, CA - 5, CIA - 10)	1	10
		1. Liquids 2. Solids 3. Chemical kinetics	Mrigendu Midya			1	20
		1. Chemical Bonding and Molecular Structure 2. Comparative study of P-block elements	Minakshi Maity			1	30
MI-2P	1. Surface tension measurements. 2. Viscosity measurements. 3. Kinetics Study	Mrigendu Midya	2	20	2	60	
	Qualitative study of Acid and Basic Radicals	Minakshi Maity			2		
SEM III	C5T (Physical Chemistry)	1. Viscosity 2. Chemical Equilibrium 3. Partial properties and Chemical Potential	Mrigendu Midya	4	55 (T-40, CA - 5, CIA - 10)	2	25
		1. Conductance and transport number. 2. Fick's law 3. Foundation of Quantum Mechanics.	Ribhu Maity			2	35

C5P (Physical Chemistry lab)	1. Viscosity measurements. 2. Determination of Partition Coefficient. 3. Determination of equilibrium constant using partition coefficient.	Mrigendu Midya	2	20	2			
	1. Conductometric titration. 2. Study of saponification. 3. Verification of Ostwald,s dilution law.	Ribhu Maity						2
C6T (Inorganic Chemistry)	Chemical Bonding -I	Minakshi Maity	4	55 (T-40, CA -5, CIA -10)	2	24		
	1. Chemical Bonding –II. 2. Radioactivity	Dr. Narottam Sutradhar					2	36
C6P (Inorganic Chemistry lab)	1. Iodimetric Titrations . 2. Estimation of metal content in some selective samples (Brass, Steel, Cement)	Minakshi Maity	2	20	4	60		
C7T (Organic Chemistry)	1. Chemistry of alkenes and alkynes. 2. Aromatic Substitution.	Goutam Kumar Jana	4	55 (T-40, CA -5, CIA -10)	2	25		
	1. Carbonyl and Related Compounds 2. Organometallics	Dr. Bidhan Chandra Samanta					2	35
C7P (Organic Chemistry lab)	Qualitative analysis of single solid organic compounds	Dr. Bidhan Chandra Samanta	2	20	4	60		
SEC1T	1. Drugs and Pharmaceuticals. 2. Fermentation.	Dr. Bidhan Chandra Samanta	2	50 (T-25, P-15, CA -5, CIA -5)	2	30		
SEC1P	1. Preparation of Aspirin and its analysis. 2. Preparation of magnesium bisilicate .	Dr. Bidhan Chandra Samanta					2	30
GE -3T	Chemical Energetics	Ribhu Maity	4	55 (T-40, CA -5, CIA -10)	1	14		
	1. Chemical Equilibrium. 2. Ionic Equilibria .	Mrigendu Midya					1	16
	1. Aromatic Hydrocarbons 2. Organometallic Compounds 3. Aryl	Dr. Bidhan Chandra Samanta &					1	30

		Halides 4. Alcohols, phenols, ether 5. Carbonyl Compounds.	Goutam Kumar Jana				
	GE-3P	1. Determination of heat capacity of Calorimeter for different volumes. 2. Determination of enthalpy of ionization. 3. Determination of enthalpy of neutralization.	Ribhu Maity	2	20	2	60
		1. Find the PH of an unknown buffer solution. 2. Study of the solubility of benzoic acid in water.	Mrigendu Midya			2	
SEM - IV	C8T (Physical Chemistry)	1. Electromotive Force. 2. Quantum Chemistry.	Ribhu Maity	4	55 (T-40, CA - 5, CIA - 10)	2	36
		1. Colligative Properties 2. Phase rule 3. Binary solutions. 4. Ionic equilibria.	Mrigendu Midya			2	24
	C.8P (Physical Chemistry lab)	1. Determination of solubility of sparingly soluble salt in water. 2. Determination of solubility product .3. Effect of ionic strength on the rate of Persulphate – Iodide reaction.	Ribhu Maity	2	20	2	60
		1. Potentiometric titration of Mohr’s salt . 2. Study of phenol – Water phase diagram. 3. PH - metric titration of acid against base.	Mrigendu Midya			2	
	C.9T (Inorganic Chemistry)	1. General Principle of Metallurgy 2. Inorganic Polymers 3. Coordination Chemistry – 1.	Dr. Narottam Sutradhar	4	55 (T-40, CA - 5, CIA - 10)	2	36

		1. Chemistry of s and p Block elements .2. Nobel Gases .	Minakshi Maity			2	24
	C9P (Inorganic Chemistry lab)	1.Complexometric titration 2.Inorganic Preparation	Dr. Narottam Sutradhar	2	20	4	60
	C10T (Organic Chemistry)	1.Nitrogens Compound 2.Rearrangements	Goutam Kumar Jana	4	55 (T-40, CA -5, CIA -10)	2	36
		1.Organic Synthesis 2.Organic Spectroscopy	Dr. Bidhan Chandra Samanta			2	24
	C10P (Organic Chemistry lab)	Quantitative Estimations	Dr. Bidhan Chandra Samanta	2	20	4	60
	SEC -2T	Pesticides Chemistry	Dr. Bidhan Chandra Samanta	2	50 (T-25, P-15, CA -5, CIA -5)	2	30
	SEC -2P	Determination of PH, acidity, alkalinity, ion exchange capacity. TLC, ion exchange paper chromatography method, Complexometric titration. Or Preparation	Dr. Bidhan Chandra Samanta			2	30
	GE4T	Solutions and Phase equilibrium	Mrigendu Midya	4	55 (T-40, CA -5, CIA -10)	1	18
		Conductance and Electrochemistry	Ribhu Maity			1	12
		Analytical and Enviromental Chemistry	Goutam Kumar Jana			1	30
	GE4 P	Distribution law , Phase equilibria	Mrigendu Midya	2		2	60
		Conductance , Potentiometry titration	Ribhu Maity			2	
SEM - V	C11T (Inorganic Chemistry)	Coordination Chemistry-II	Dr. Narottam Sutradhar	4	55 (T-40, CA -5, CIA -10)	2	36
		Chemistry of d- and f- block elements	Minakshi Maity			2	24
	C11P (Inorganic Chemistry lab)	Chromatography of metal ions, Gravimetry and spectrophotometric method.	Dr. Narottam Sutradhar	2	20	4	60

	C12T (Organic Chemistry)	Carbocycles and Heterocycles , Cyclic Stereochemistry ,Pericyclic reactions	Dr. Bidhan Chandra Samanta	4	55 (T-40, CA - 5, CIA - 10)	2	36
		Carbohydrates , Bio-molecules	Goutam Kumar Jana			2	24
	C12P (Organic Chemistry lab)	Chromatographic Separations ,Spectroscopic Analysis of Organic Compounds	Dr. Bidhan Chandra Samanta	2	20	4	60
	DSE-1T	Crystal Structure , Polymers	Mrigendu Midya	4	55 (T-40, CA - 5, CIA - 10)	2	24
		Statistical Thermodynamics	Ribhu Maity			2	36
	DSE-1P	Computer programs based on numerical methods	Ribhu Maity	2	20	4	60
DSE-2T	Analytical Methods in Chemistry Or Instrumental Methods of Chemical Analysis	Dr. Bidhan Chandra Samanta	4	55 (T-40, CA - 5, CIA - 10)	2	60	
DSE-2P	Separation Techniques , Solvent Extractions , Spectrophotometry Or Instrumental Methods of Chemical Analysis	Dr. Bidhan Chandra Samanta			4	60	
SEM-VI	C13T (Inorganic Chemistry)	Bioinorganic Chemistry , Reaction Kinetics and Mechanism	Dr. Narottam Sutradhar	4	55 (T-40, CA - 5, CIA - 10)	2	36
		Organometallic Chemistry	Minakshi Maity			2	24
	C13P (Inorganic Chemistry lab)	Qualitative Analysis	Dr. Narottam Sutradhar	2	20	4	60
	C14T (Physical Chemistry)	Molecular Spectroscopy , Surface phenomenon	Ribhu Maity	4	55 (T-40, CA - 5, CIA - 10)	2	36
		Photochemistry	Mrigendu Midya			2	24
	C14P (physical Chemistry lab)	Determination of surface tension and CMC	Mrigendu Midya	2	20	2	60
Verification of Beer and Lambert's Law , Study of kinetics of		Ribhu Maity	2				

		K ₂ S ₂ O ₈ + KI reaction , Determination of pH of unknown buffer and CMC spectrophotometrically					
	DSE3T	Inorganic Materials of Industrial Importance	Dr. Bidhan Chandra Samanta	4	55 (T-40, CA - 5, CIA - 10)	4	60
	DSE3P	1. Determination of free acidity in ammonium sulphate fertilizer. 2. Estimation of Calcium in Calcium ammonium nitrate fertilizer. 3. Estimation of phosphoric acid in superphosphate fertilizer. 4. Electrolysis metallic coatings on ceramic and plastic material. 5. Analysis of (Cu, Ni); (Cu, Zn) in alloy or synthetic samples. 6. Analysis of Cement. 7. Preparation of pigment (zinc oxide).	Dr. Bidhan Chandra Samanta	2	20	4	60
	DSE4T	Polymer Chemistry	Mrigendu Midya & Ribhu Maity	4	55 (T-40, CA - 5, CIA - 10)	4	60
	DSE4P	Polymer characterization, Polymer analysis.	Dr. Bidhan Chandra Samanta	2	20	4	60


Dr. Swapan Kumar Misra
Principal

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