

# Mymensingh Polytechnic Institute

## Outline plan of Teaching (semester Plan)

Technology: - ENT, CST, PT. Subject: -Chemistry-1 (25913) Shift:-1st shift

T	P	C
3	3	4

Week	Contents NO		Topics (Theory)	Topics (Practical)	remark
01	00-00 1.1-1.4 1.5-1.8	L-1 L-2  L-3	Introduce to Class. <b>ATOMIC STRUCTURE</b> Define Element, atoms, and molecules. Define molecular mass, atomic number, mass number, mole and Avogadro's number. Distinguish between atom and molecule. Describe fundamental particle of atom. Define isotope, isobar and isotone. Define orbit and orbital. Explain quantum number. Describe electronic configuration based on Aufbau principle, Hund's rule, and Pauli's exclusion principle.	Discussion introduces to Chemistry Lab	
02	2.1-2.2 2.3-2.4 2.5-2.6	L-1 L-2 L-3	Symbol, Valency and Formula Define Symbol, Valency and Formula. Discuss the variations of valency. Describe active and latent valency Describe radicals.	To know Personal protective Equipment.	
03	3.1-3.4 3.5-3.7 3.8-3.11	L-1 L-2 L-3	<b>GAS</b> Define gas and vapor. Mention the characteristic of gas. Distinguish between gas and vapor. Define STP, NTP, and Absolute temperature. Mention the Boyle's, Charles's and Avogadro's law. Establish the ideal gas equation ( $PV=nRT$ )	1. Safe uses of laboratory instruments.	QT-1
04	4.1-4.5 4.6-4.7 4.8 -4.10	L-1 L-2 L-3	<b>CHEMICAL BOND</b> Define Chemical Bond. Define octate rule. Explain ionic bond, covalent bond, and co-ordinate covalent bond. Mention the characteristic of ionic and covalent compound. Differentiate between ionic and covalent compounds.	2. Perform preparation of decimolar (0.1 M) $Na_2CO_3$ solution.	

05	5.1-5.2	L-1	<p style="text-align: center;"><b>ACID, BASE AND SALT</b></p> State modern concept of Acid and Base. List the properties of acid and base. Classify salt. Explain basicity of an acid and acidity of a base.	3.Determine the strength of H <sub>2</sub> SO <sub>4</sub> solution by decimolar Na <sub>2</sub> CO <sub>3</sub> solution.	
	5.3-5.6	L-2			
	5.7-5.8	L-3			
06	6.1-6.3	L-1	<p style="text-align: center;"><b>IONIC EQUILIBRIUM</b></p> Explain p <sup>H</sup> and p <sup>H</sup> scale. Define Normality, Molarity and Molality. Define primary and secondary standard substances. Define standard solution, Titration and Indicator. Define buffer solution and its mechanism. Describe importance of p <sup>H</sup> in agriculture and chemical industries.	4.Perform preparation of decimolar (0.1 M) NaOH solution.	CT-1
	6.4-6.6	L-2			
	1.1-6.6	L-3			
07	1.1-6.6		Midterm Exam.....	Midterm Exam	
08	7.1-7.2	L-1	<p style="text-align: center;"><b>CHEMICAL REACTION</b></p> Define exothermic and endothermic reaction. Define chemical reaction. Classify chemical reaction. Describe catalyst and catalysis. Mention the uses of catalyst in industries.	5. Determine the strength of HCl solution by decimolar NaOH solution.	
	7.3-7.4	L-2			
	7.5-7.6	L-3			
09	8.1-8.3	L-1	<p style="text-align: center;"><b>OXIDATION AND REDUCTION</b></p> Describe modern concept of Oxidation and Reduction. Define oxidizing agent and reducing agent. Describe simultaneous process of oxidation and reduction. Explain the oxidation number/ state. Distinguish between oxidation number and valency.	6.Measure the P <sup>H</sup> value of unknown solution using P <sup>H</sup> meter and paper.	QT-2
	8.4-8.5	L-2			
	8.6-8.7	L-3			
10	9.1-9.2	L-1	<p style="text-align: center;"><b>WATER</b></p> Define Hard and soft water. Define hardness of water. Define permutit process to removal the hardness of water. Mention the advantage and disadvantage of soft and hard water. Describe reverse osmosis process.	Self-check	
	9.3-9.5	L-2			
11	10.1-10.3	L-1	<p style="text-align: center;"><b>ELECTRO- CHEMISTRY</b></p> Define electrolyte, electrolysis and electrode. State the mechanism of electrolysis process. Mention the process of chrome electroplating. Define galvanizing. Mention the importance of galvanizing.	7. Identify radicals: Cu, Al, Fe, Fe, Ca, Zn, NO, Cl, SO,CO.	
	10.4-	L-2			
	10.5	L-3			

			Self-Check		
12	11.1-11.4 11.5-11.7	L-1 L-2 L-3	<p><b>BASIC CONCEPT OF ORGANIC CHEMISTRY</b></p> <p>Define organic chemistry. Classify organic compound.</p> <p>Mention the catenation properties of carbon. Distinguish between organic and inorganic compounds. Explain homologous series of organic compound. State molecular and structural formula of methane, propane and butane. Describe functional group of organic compounds.</p>	8. Identify salt: CuNO, AlCl, FeSO, FeCl, CaCO, ZnCl.	
13	12.1-12.3 13.1-13.4	L-1 L-2 L-3	<p><b>ALIPHATIC HYDROCARBON</b></p> <p>Define hydrocarbon, saturated and unsaturated hydrocarbon. Describe nomenclature of alkane, alkene, alkyne IUPAC system. Mention the uses of hydrocarbon methane, ethane and ethyne. Self-check</p> <p><b>ALCOHOL</b></p> <p>Define alcohol. Describe the classification of alcohol. Define absolute alcohol, rectified spirit and power alcohol. Define enzyme and fermentation.</p>	9. Perform preparation vinegar from acetic acid.	CT-2
14	14.1-14.4 15.1-15.3	L-1 L-2 L-3	<p><b>AROMATIC COMPOUND</b></p> <p>Define aromatic compound. Define aromaticity and Huckel's theory. Describe synthesis of benzene from phenol, acetylene and benzoic acid. Mention the uses of benzene.</p> <p><b>VOCATIONAL CHEMISTRY</b></p> <p>Define food security, natural and approved chemical preservatives. Describe canning process of mango and pineapple. Describe canning process of fish and meat.</p>	10. perform preparation of sanitizer using Isopropyl Alcohol.	
15			Do	Viva	
16			Do	Practical Exam	

Date 17.09.2023

Signature  
MD. NAZMUL HAQUE  
Junior Instructor (Non-tech)  
MPI

