

CC-M2

Session: 2023-24			
Part A - Introduction			
Subject	Chemistry		
Semester	II		
Name of the Course	Minor Chemistry-II		
Course Code	B23-CHE-203		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC-M		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)	4.0		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. To know the basics of periodic properties and hybridization. 2. To learn about the ionic solids. 3. Understand about the semiconductors and metallic bonds. 4. Get the knowledge of stereochemistry of simple organic molecules. 5*. Hand on practice in preparation of solutions, compounds, estimation and determination of physical properties of some compounds.		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	15	30	45
Max. Marks:30 + 20* Internal Assessment Marks:10 + 05* End Term Exam Marks: 20 + 15*		Time:02 + 02* hrs	

Part B- Contents of the Course		
<u>Instructions for Paper- Setter</u> Note: The examiner is requested to set nine questions in all, selecting two questions from each SECTION and one question (Question No.1 based on entire syllabus will consist of short answer type. All questions carry equal marks. The candidate is required to attempt five questions in all selecting one from each SECTION. Question No.1 is compulsory. Log table and non-programmable calculator is allowed.		
Unit	Topics	Contact Hours
I	Periodic table and atomic properties Atomic properties: atomic and ionic radii, ionisation energy, electron affinity and electronegativity definition, trend in periodic table, effective nuclear charge, Slater's rules.	4
II	Ionic Solids: Stoichiometric and Non-stoichiometric defects in crystals, Lattice energy and Born- Haber cycle, Solvation energy and its relationship with solubility of Ionic solids, Polarizing power and Polarisability of ions, Fajan's rule.	4
III	Structure and Bonding in Organic Compounds Localized and delocalized chemical bond, Van der Waal's interactions, resonance: conditions and resonance effect, hyperconjugation, inductive effect, Electromeric effect & their comparison.	4
IV	Gaseous State Kinetic theory of gases, Calculation of root mean square velocity, average velocity, and most probable velocity. Collision diameter, collision number, collision frequency and mean free path (derivations excluded).	3
V*	1. Acid/Base titration: Determination of strength of oxalic acid using NaOH. 2. Redox titrations: Determination of Fe^{2+} ions using KMnO_4 . 3. To determine the surface tension of given liquid using stalagmometer by drop no. method. 4. To prepare a sample of iodoform.	30
Suggested Evaluation Methods		

Internal Assessment: 10 + 05* ➤ Theory • Class Participation: 3 • Seminar/presentation/assignment/quiz/class test etc.: 3 • Mid-Term Exam: 4 ➤ Practicum • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab records etc.: 05* • Mid-Term Exam: NA	End Term Examination: 20 + 15*
Part C-Learning Resources	
Recommended Books/e-resources/LMS: 1. Huheey, J.E.; Keiter, E.A.; Keiter; R. L.; Medhi, O.K. (2009), Inorganic Chemistry- Principles of Structure and Reactivity, Pearson ducation. 3. Atkins, P.W.; Paula, J.de. (2014), Atkin's Physical Chemistry Ed., 10th Edition, Oxford UniversityPress. 4. Kapoor, K.L.(2015), A Textbook of Physical Chemistry, Vol 1, 6th Edition, McGraw HillEducation. 5. Khosla, B.D.; Garg, V.C.; Gulati, A. (2015), Senior Practical Physical Chemistry, R. Chand &Co, New Delhi.	

*Applicable for courses having practical component.