



**BHAVAN'S**  
**BHAGWANDAS PUROHIT VIDYA MANDIR, NAGPUR**  
**CURRICULUM PLAN (2023-24)**

**STD: XII      SUBJECT : CHEMISTRY**

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**BHAVAN'S B.P. VIDYA MANDIR, NAGPUR**  
**CURRICULUM PLAN**  
**2023-2024**  
**SUBJECT:- CHEMISTRY**  
**STD:- XII**

MONTH	WEEKLY DATES	NO. OF PERIODS	TOPICS	SUB TOPICS	PERIODS REQUIRED	PRACTICALS/ ACTIVITIES/SMART CLASS MODULES/	ASSIGNMENTS/ EVALUATION	LEARNING OUTCOMES/SDG/ SKILLS ASSESSED
April	1st week 6-8	2	6. Haloalkanes and Haloarenes	6.1 Classification 6.2 Nomenclature	1 1	ICT: Nature of C-X bond Practicals: Preparation of pure crystals of Mohr's salt	Extra questions are discussed based on the concept taught.	Students will be able to : Recognize the classification, learn the preparation and properties of haloalkanes and haloarenes.
	2nd week 10-15	5		6.3 Nature of C-X bond. 6.4 Methods of preparation 6.5 Preparation of Haloarenes	1 3 1			
April	3rd week 17-21	5	6. Haloalkanes and Haloarenes (contd.)	6.6 Physical properties 6.7 Chemical reactions	1 4	<b>Experiential Learning Activity:</b> Ball and stick model to explain stereochemistry of SN1 and SN2 reactions.		<b>Skills assessed:</b> Critical thinking skills, creative skills, collaborative skills, communicative skills and literacy skills.
April	4th week 24-29	5	6. Haloalkanes and Haloarenes	6.8 Polyhalogen compounds Exercise	2 3	Practicals: Preparation of pure crystals of Mohr's salt.	Assignment for this chapter will be given.	<b>SDG:</b> Toxic effects of polyhalogen compounds. Students will be able to : Classify alcohols and give their IUPAC name.

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Jun	4th week 20-24	5	7. Alcohols, Phenols & Ethers (contd.)	7.3 Structures of functional groups 7.4 Alcohols and Phenols	1 4	ICT: Structure of functional group & mechanism of reactions. <b>Experiential Learning Activity:</b> Hands-on activity to differentiate primary, secondary and tertiary alcohols.	Assignment sheet for chap 7 will be discussed.	Students will be able to : Describe the method of preparation, properties of alcohols and phenols. <b>Skills assessed:</b> Critical thinking skills, collaborative skills and communicative skills.
Jun	5th week 26-30	4	7. Alcohols, Phenols & Ethers (contd.)	7.5 Some commercially important alcohols 7.6 Ethers	1 3	Practicals: Detect the presence of Functional group in organic compounds.	Extra questions are discussed based on the concept taught.	Students will be able to : write chemical equations for preparation and properties of ethers. <b>SDG:</b> Harmful effects of drinking alcohol.
July	1st & 2nd week 1-7	7	1. Solutions	1.1 Types of solutions 1.2 Expressing concentrations 1.3 Solubility 1.4 Vapour pressure of liquid solutions.	1 1 2 3	ICT: Vapour pressure of liquid solutions. Practicals: Detect the presence of organic compounds	Assignment sheet based on numericals.	Students will be able to : classify solutions and define solubility State Raoult's law, explain vapour pressure of liquids.
July	3rd week 10-15	7	1. Solutions (contd.)	1.5 Ideal & non ideal solutions. 1.6 Colligative properties, determination of molar mass. 1.7 Abnormal molar mass.	2 4 1	<b>Experiential Learning Activity:</b> Mixing of benzene and toluene, phenol and aniline, acetone and ethanol to understand properties of ideal and	Assignment sheet for Ch.1	Students will be able to : ideal and non-ideal solution. Solve numerical based on colligative properties and abnormal molar

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July	4th week 17-22	7	1. Solutions (contd) 2. Electrochemistry	Numericals Exercise 2.1. Electrochemical Cells 2.2. Galvanic Cells	3 2 2	non-ideal solution. Hands-on activity to understand elevation in boiling point and depression in freezing point. ICT: Colligative properties. Practicals: Titration $\text{KMnO}_4$ vs. FAS <b>Model making:</b> Electrochemical cell	PERIODIC TEST I: 17/07/2023 PORTION: CH 6: HALOALKANES AND HALOARENES (12M) CH 7: ALCOHOLS, PHENOLS AND ETHERS (13M)	Students will be able to : Learn about electrochemical cells. <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills, communicative skills and life skills.
July	5th week 24-31	7	2. Electrochemistry (contd.)	2.3. Nernst Equation 2.4 Conductance of Electrolytic Solutions 2.5 Electrolytic Cells & Electrolysis	3 2 2	Practicals: Titration $\text{KMnO}_4$ vs. FAS <b>Experiential Learning Activity:</b> Activity to understand conductance of electrolytic solution using aqueous sodium chloride and graphite of pencil.		Students will be able to : Apply Kohlrausch's law in determining the molar conductivity and degree of dissociation of weak electrolytes. <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills, communicative skills and life skills.

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Aug	1st week 1-5	6	2. Electrochemistry (contd.)	2.6 Batteries 2.7 Fuel cells 2.8 Corrosion	3 2 1	Practicals: Titration KMnO <sub>4</sub> vs. Oxalic acid  ICT: Working Mechanism of Batteries, Fuel cell and corrosion. <b>Experiential Learning-Activity:</b> Dissection of dry cell to understand its components.	tudents will be able to: write equations for preparation and properties of amines.	<b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills and communicative skills. <b>SDG:</b> Understand the need of alternate sources of energy and develop concern for factors affecting the climate change.
Aug	2nd week 7-12	7	2. Electrochemistry (contd.)	Exercise	3	Practicals: Titration KMnO <sub>4</sub> vs. Oxalic acid	Assignment sheet based on numericals of Electrochemistry.	Students will be able to: Understand the IUPAC name of Aldehyde and ketones. Understand preparation and correlate properties of aldehyde and ketones.
Aug	3rd week 14-19	5	8. Aldehydes, ketones and carboxylic acids (contd.)	8.3 Physical properties 8.4 Chemical reactions 8.5 Uses of aldehyde & ketones 8.6 Nomenclature & structures of Carboxylic group	1 2 2	Practicals: Chromatography ICT: Acidity of carboxylic acids <b>Experiential Learning Activity:</b> Hands on activity- 2,4 DNP test for aldehyde and ketone, silver mirror test for aldehydes.		Students will be able to: Understand nomenclature of carboxylic acids. <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills and communicative skills.

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Aug	4th week 21-26	7	8. Aldehydes, ketones and carboxylic acids (contd.)	8.7 Methods of preparation of Carboxylic acids. 8.8 Physical properties 8.9 Chemical reactions 8.10 Uses of acids Exercise 4.1 Position in the periodic table 4.2 Electronic configuration of d-Block elements	2  2 1 1 1	Practicals: Salt analysis- group- zero <b>Experiential Learning Activity:</b> Hands on activity to understand the properties of ethanoic acid.	<b>PERIODIC TEST II:</b> 21/08/2023 <b>CH 1. SOLUTIONS (12M)</b> <b>CH 2. ELECTRO CHEMISTRY (13M)</b>	Students will be able to understand preparation, properties and uses of carboxylic acids, Know about the position of d-block elements. <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills and communicative skills.
Aug	5th week 28-31	3	4. d and f block Elements (contd.)	4.3 General properties of the T transition Elements (d- block)	3	Practicals: Salt analysis Grps -1,2. ICT: Periodic table, position of transition elements. <b>Experiential Learning Activity:</b> Model of metallic lattice.	Intext questions and reasoning questions will be discussed.	Students will be able to : understand and analyse the trend in the properties of d-Block elements. <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills communicative skills, leadership, flexibility and initiative skills.
Sep	1st week 1-2	2	4. d and f block Elements (contd.)	4.4 Some important compounds of transition elements	2	Practicals: Salt analysis Grp 3 <b>Experiential Learning Activity:</b> Preparation of any complex compound by adding appropriate chemicals.	Extra questions are discussed based on the concept taught.	Students will be able to : Learn the preparation and properties of $\text{KMnO}_4$ and $\text{K}_2\text{Cr}_2\text{O}_7$ Write balanced chemical equations.

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Sep	2nd week 5-10	5	4. d and f block Elements (contd.)	4.5 The Lanthanoids 4.6 The Actinoids 4.7 Application of d & f Block elements, Exercise	2 2 1	Practicals: Salt analysis Grp 4  ICT: Position of actinoids in periodic table.	Assignment sheet is given and discussed.	Students will be able to : Compute the similarities and difference of d- and f- block elements.
Sep	3rd week 11-16	6	3. Chemical Kinetics	3.1 Rate of a chemical reaction 3.2 Factors influencing rate of a reaction	3 3	Practicals: Salt analysis Grp 5	Extra questions are discussed based on the concept taught.	Students will be able to: Understand about rate, factors affecting the reaction. <b>SDG:</b> Enable students to get insight of economic factors related with increase in production
Sep	4th and 5th week 18-26	6	3. Chemical kinetics (contd.)	3.3 Integrated rate equation Revision	4 2		<b>Portion Completion Date: 18/09/2023</b>	Students will be able to: Give examples of Pseudo first order reaction
<b>HALF YEARLY EXAMINATION : 30/09/2023 TO 16/10/2023</b> <b>CHAPTERS: 1. SOLUTIONS (11M)</b> <b>2. ELECTROCHEMISTRY (14M)</b> <b>4. THE d AND f BLOCK ELEMENTS (11M)</b> <b>6. HALOALKANES AND HALOARENES (10M)</b> <b>7. ALCOHOLS, PHENOLS AND ETHERS (10M)</b> <b>8. ALDEHYDES, KETONES AND CARBOXYLIC ACIDS (14M)</b>								

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Oct	3rd week 17-21	4	<b>3. Chemical kinetics (contd.)</b>	3.4 Temperature dependance on rate of reaction 3.5 Collision theory of chemical reactions Numericals	2  1 1	ICT: Collision theory Practicals: Preparation of organic compound Dibenzal acetone	Students will be able to: write equations for preparations and properties of amines.	Students will be able to Analyse the Temperature dependance on rate of the reaction and collision theory.
Oct	4th week 25-27	3	<b>9. Amines</b>	9.1 Structure of amines 9.2 Classification 9.3 Nomenclature	1 1 1	Practicals: Salt analysis- group 6	Assignment sheet is given and discussed.	Students will be able to Classify amines write the structure and name the compound.
Oct	5th week 30 & 31	2	<b>9. Amines (contd.)</b>	9.4 Preparation of amines	2			Students will be able to: write equations for preparation of amines.
Nov	1st week 1-4	5	<b>9. Amines (contd.)</b>	9.5 Physical properties 9.6 Chemical reactions 9.7 Method of preparation of diazonium salts. 9.8 Physical properties 9.9 Chemical reactions	1 2 1 1	Practicals: Lyophilic and lyophobic sols	Students will be able to: write equations for preparation and properties of amines.	Students will be able to: write equations for properties of amines.
Nov	2nd week 6-9	5	<b>9. Amines (contd.)</b>	9.10 Importance of diazonium salt in synthesis of aromatic compounds 5.1 Werner's theory 5.2 Definition of important terms pertaining to coordination compounds 5.3 Nomenclature	1  1 1 2	Practicals: Effect of concentration on rate of reaction.	Assignment sheet is given and discussed.	Students will be able to: write equations for preparation and properties of diazonium salts. Define important terms of Coordination compounds and name the compounds



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<b>DIWALI VACATIONS: 10/11/2023 TO 22/11/2023</b>								
Nov	4th week 23-25	3	5. Coordination Chemistry	5.4 Isomerism in coordination compounds	3	Practicals: Effect of temperature on rate of reaction. Experiential Learning Activity- ball and stick model to show different isomers.	Assignment sheet for chap 5 will be discussed.	Students will be able to ;, define isomerism. <b>-Skills assessed:</b> Critical thinking, creative thinking and collaborative skills .
Nov	5th week 28-30	3	5. Coordination Chemistry (contd.)	5.5 Bonding in coordination compounds	3	Practicals: Effect of temperature on rate of reaction.	<b>PERIODIC TEST III:</b> 28/11/2023 CH 3. CHEMICAL KINETICS (13M) CH 9. AMINES (12M)	Students will be able to: understand bonding nature in coordination compounds.
Dec	1st and 2nd week 1-8	8	5. Coordination Chemistry (contd.)  <b>10. BIOMOLECULES</b>	5.6 Bonding in metal carbonyl 5.7 Importance and Application of Coordination compounds Exercise  10.1 Carbohydrates 10.2 Proteins 10.3 Enzymes 10.4 Vitamins	1  3 2 1 1	ICT: 1. Chelate formation by polydentate ligands. 2. Bonding Complexes  ICT: Structure of Proteins <b>Art Integrated Activity:</b> 3-D model of primary, secondary structures of protein OR DNA and RNA model	Intext questions and reasoning questions will be discussed. Exercise question will be given for assignment  <b>Skills assessed:</b> Critical thinking skills, creative thinking, collaborative skills and communicative skills.	

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Dec	3rd and 4th week 11-19	9	10. BIOMOLECULES (contd.)	10.5 Nucleic acids 10.6 Hormones REVISION	3 1 5		Portion completion date: 13/12/2023	Students will be able to understand vitamins, nucleic acids and hormones. <b>SDG:</b> Importance of diet in maintaining Health and Fitness.
<b>PRELIMINARY EXAMINATION- 20/12/2023 TO 06/01/2024</b>								
Jan	Remedial and doubt clearing sessions. Board practical examination							
Feb	Study holidays and doubt clearing sessions							

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CURRICULUM PLAN  
2023-24**

**SUBJECT:- CHEMISTRY  
STD:- XII**

**LIST OF PRACTICALS**

- To prepare Mohr's salt.
- Chromatography
- Test for functional groups ( Unsaturation, Alcohols, Acids, Aldehydes, Ketones, Phenols and Ethers)
- Test for bio-molecules (glucose, sucrose, protein and starch)
- To prepare dibenzal acetone.
- a. To prepare Mohr's salt solution and determine the strength of given potassium permanganate solution.  
b. To prepare oxalic acid solution and determine the strength of given potassium permanganate solution.
- Qualitative analysis of inorganic compounds  
(Carbonate, Chloride, Nitrate, Sulphate, Phosphate, Acetate, oxalate, Bromide, Ammonium, Lead, Copper, Aluminium, Iron, Nickel, Zinc, Manganese, Calcium, Barium, Magnesium)
- To study the effect of the temperature on the rates of the reaction.
- To study the effect of the concentration on the rates of the reaction.
- To prepare colloidal solution of Lyophilic sol.
- To prepare colloidal solution of Lyophobic sol.

## **Portion for Examinations (2023-24) - XII Chemistry**

### **PERIODIC TEST I : 17/07/2023**

Chapter-6: Haloalkanes and Haloarenes (12M)

Chapter-7: Alcohols, Phenols and Ethers (13M)

### **PERIODIC TEST II : 21/8/2023**

Chapter-1: Solutions (12M)

Chapter-2: Electrochemistry (13M)

### **PERIODIC TEST III: 28/11/2023**

Chapter-3: Chemical kinetics (13M)

Chapter-9: Amines including 13.6 (12M)

### **HALF YEARLY EXAM : 30/09/2023**

Chapter- 1 : Solutions(11M)

Chapter-2: Electrochemistry(14M)

Chapter-4: d & f block elements (11M)

Chapter-6: Haloalkanes & haloarenes (10M)

Chapter-7: Alcohols,phenols & ethers (10M)

Chapter-8: Aldehydes, Ketones and Carboxylic acids (14M)

### **PRACTICAL (HALF YEARLY)**

1. Crystallization – Mohr's Salt
2. Detection of Functional Groups- Unsaturation, Alcohol, Carboxylic acids, Aldehydes  
Ketones, Phenols and Amines.
3. Detection of organic compounds- Carbohydrates, Proteins.
4. Chromatography
5. Volumetric Analysis- Redox Titration-( 2 Experiments)
6. Preparation of organic compound : Dibenzal acetone
7. Salt Analysis –Groups 0-3 and all acid radicals.

### **PRELIMINARY EXAMINATION – January**

Course & Marks Distribution as per Board Pattern

# Art - Integrated Activity



Bhavan's B.P. Vidya Mandir, Nagpur

Art - Integrated Activity/Project/Subject Enrichment (2023-2024)

Subject: Chemistry Class: XII  
Topic: d & f block, Biomolecules.  
Sub-topic: Model of metallic lattice / Model of DNA, RNA / Models of 1°, 2° & 3° structures of Proteins.  
Nature of Task: Group activity

Task: Model making.  
Skills Assessed: Learning skills:- Collaborative work, Creativity, Critical thinking, Literacy skills:- Information, Media, Technology, Life skills:- Flexibility  
Learning Objectives: Students will be able to simplify their knowledge in terms of their model. The model will be designed to encourage creativity, collaborative work, communication skills, etc.

Procedure: 1) Teacher will explain & guide the students to make model on metallic lattice, DNA-RNA or 1°, 2° & 3° structures of proteins.  
2) Teacher will further instruct to select any one topic from above three & make model by using ball sticks, wires, clay, beads, etc  
3) Students can gather information from various sources & present model in creative manner.



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Art - Integrated Activity/Project/Subject Enrichment (2023-2024)

Assessment Criteria: ① Content  
② Concept Clarity  
③ Creativity  
④ Presentation  
⑤ Team work

Duration of the Task: One Week.

Follow up / Feedback: Teacher will ask questions & guide the students in case of any doubt.

Assessment Rubric: ① Content - 01  
② Concept Clarity - 01  
③ Creativity - 01  
④ Presentation - 01  
⑤ Team work - 01  
Total - 05

Subject Coordinator's: Name and Signature

CL : Smt. Sonali Dongre

SKN : Sandhya Dasi

ASHTI: Mrs. A-Susheela

TMN : Nidhi Agrholi 12/05/23

KORADI: \_\_\_\_\_

CHB: \_\_\_\_\_

(SMT. ANJU BHUTANI)  
PRINCIPAL  
BVM, CL

(SMT. NIRUPAMA PADMARAJ)  
PRINCIPAL  
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(SMT. VANDANA BISEN)  
PRINCIPAL  
BVM, ASHTI

(SMT. PARWATI G. IYER)  
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(SMT. RAJI SRINIVASAN)  
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**BHAVANI'S B.P. VIDYA MANDIR, NAGPUR**

**CURRICULUM PLAN**

**SESSION: 2023-2024**

**SUBJECT: CHEMISTRY**

**STD: XII**

<b>Sr.No.</b>	<b>NAME OF THE TEACHER</b>	<b>BRANCH</b>	<b>PHONE NO.</b>	<b>SIGNATURE</b>
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4.	Smt. Sandhya Dani	SKN	9049336016	
5.	Smt. A.Susheela	ASHTI	7038250340	
6.	Smt.Nidhi Agnihotri	TRIMURTI NAGAR	9780168638	
7.	Ms. Sneha Hampiholi	MOUDA	7448187006	
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