

# COURSE STRUCTURE

SUBJECT: CHEMISTRY

CLASS – XI

SESSION – 2010- 2011

1.	UNIT No.	TITLE	MARKS
2.	UNIT –1	Some Basic concepts of chemistry	3
3.	UNIT – 2	Structure of Atom	6
4.	UNIT – 3	Classification of Elements and periodicity in Properties	4
5.	UNIT – 4	Chemical Bonding and Molecular structure	5
6.	UNIT – 5	States of Matter : Gases and Liquids	4
7.	UNIT – 6	Thermo dynamics	6
8.	UNIT – 7	Equilibrium	6
9.	UNIT – 8	Redox Reactions	3
10.	UNIT – 9	Hydrogen	3
11.	UNIT – 10	s-Block Elements	5
12.	UNIT – 11	Some p-Block Elements	7
13.	UNIT – 12	Organic Chemistry : Some basic Principles and Techniques	7
14.	UNIT –13	Hydrocarbons	8
15.	UNIT –14	Environmental Chemistry	3
		<b>TOTAL</b>	70

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S. No.	Date	No. of working Days	Unit	Topics and Subtopics
1.	June 26 to July 03-2010 (June 30 LWD)	6	Unit-I	<b>Some Basic – Concepts of Chemistry</b> General introduction, importance and scope of chemistry, historical approach to particulate nature of matter, laws of chemical combination : Dalton's theory : Concept of elements, atoms and molecules Atomic and molecular masses, Mole concept and molar mass: percentage composition, empirical and molecular formula,
2.	July 5 to July 9-2010	5	Unit-I  Unit-II	<b>Some Basic concepts of chemistry</b> Chemical reactions, stoichiometry and calculations based on stoichiometry. NCERT questions Unit-I <b>Structure of Atom</b> Discovery of electron, proton and neutron, Atomic number, isotopes isobars, Thomson's model and its limitations, Rutherford's model and its limitations.
3.	12 July to July 17 2010	6	Unit-II	<b>Structure of Atom</b> Bohr model and its limitations, concepts of shells and sub shells, dual nature of matter and light De Broglie relationship, Heisenberg uncertainty principle. Concept of orbital, quantum numbers, shapes of s, p & d orbital, rules for filling electrons in orbital
4.	19 July to 24 July 2010	6	Unit-II  Unit-III	<b>Structure of Atom</b> Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbital. NCERT questions Unit-II <b>Classification of Elements and periodicity in properties</b> Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table,

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5.	26 July to 30 July 2010 (31 July LWD)	5	Unit-III	<b>Classification of Elements and periodicity in properties</b> Modern periodic law and the present form of periodic table, periodic trends in properties of elements atomic radii, ionization enthalpy, Electron gain enthalpy, electronegativity, valence. NCERT questions Unit-III
6.	2 Aug. to 7 Aug. 2010	6	Unit-IV	<b>CHEMICAL BONDING AND MOLECULAR STRUCTURE</b> Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving, s, p and d orbitals and shapes of some simple molecules.
7.	9 Aug. to 13 Aug. 2010	5	Unit-IV	<b>CHEMICAL BONDING AND MOLECULAR STRUCTURE</b> molecular orbital theory of homo nuclear diatomic molecules (Qualitative idea only) Hydrogen bond. NCERT questions Unit-IV
8.	16 Aug. to 21 Aug. 2010 (17 Aug. R.H.)	6	Unit-V	<b>STATES OF MATTER : GASES AND LIQUIDS</b> Three states of matter, Inter molecular interactions, type of bonding melting and boiling points. Role of gas law in elucidating the concept of the molecules, Boyle's Law, Charles law, Gay lussac law, Avogadro's law, ideal behavior, empirical derivation of gas equation Avogadro's number, ideal gas equation.
9.	23 Aug. to 28 Aug. 2010	6	Unit-V	<b>STATES OF MATTER : GASES AND LIQUIDS</b> Deviation from ideal behaviors liquefaction of gases, critical temperature. Liquid state – vapour pressure, viscosity and surface tension (Qualitative idea only, no mathematical derivation). NCERT questions Unit-V
10.	30 Aug. to 4 Sep. 2010 (31 Aug. LWD & Sep.2 G.H.)	4	Unit-VI	<b>THERMO DYNAMICS</b> Concept of system, types of systems, surroundings, Work, heat, energy, extensive and intensive properties, state function first law of thermo dynamics – internal energy and enthalpy, heat capacity and specific heat, measurement of U and H.

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11.	6 Sep. to 10 Sep. 2010	4	Unit-VI	<b>THERMO DYNAMICS</b> Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation. Phase transformation, ionization and solution. NCERT questions Unit-VI
12.	8 Sep. 2010	1		<b>CCEP EXAM</b>
13.	13 Sep. to 20 Sep. 2010	7		<b>FIRST TERM EXAM</b>
14.	21 Sep. to 22 Sep. 2010	2		<b>DISCUSSION OF FIRST TERM QUESTION PAPER</b>
15.	23 Sep. to 25 Sep. 2010	3	Unit-VI	<b>THERMO DYNAMICS</b> Introduction of entropy as a state function, free energy change for spontaneous and non spontaneous processes, criteria for equilibrium. NCERT. Q UNIT VI
16.	27 Sep. to 30 Sep. 2010  30 Sep. (LWD)	3	Unit-XIV	<b>ENVIRONMENTAL CHEMISTRY</b> Environmental pollution – air water and soil pollution, chemical reaction in atmosphere smog major atmospheric pollutions acid rain, ozone and its reaction, effects of depletion of ozone layer, green house effect and global warming pollution due to industrial wastes: chemistry as an alternative tool for reducing pollution strategy for control of environmental pollution. NCERT questions Unit-XIV.
17.	01 Oct. to 17 Oct. 2010	17		<b>Closure of School due to COMMON WEALTH GAMES (08.10.10 to 16.10.2010 AUTMNM BREAK)</b>
18.	18 Oct. to 23 Oct. 2010	5	Unit-VII	<b>EQUILIBRIUM</b> Equilibrium in physical and chemical processes dynamic nature of equilibrium, law of mass action equilibrium constant, factors affecting equilibrium.
19.	25 Oct. to 29 Oct. 2010  30 Oct. (LWD)	5	Unit-VII	<b>EQUILIBRIUM</b> Le Chatelier's principal: Ionic equilibrium - ionization of acid and bases, strong and weak electrolytes, degree of ionization. Concept of PH. Hydrolysis of salts (elementary idea) Buffer, solution, solubility product common ion effect (with illustrative examples) NCERT questions Unit-VII

S. No.	Date	No. of working Days	Unit	Topics and Subtopics
20.	01 Nov. to 06 Nov. 2010 NOV. 5 GH	5	Unit-VIII	<b>REDOX REACTIONS</b> Concept of oxidation and reduction, red ox reactions, oxidation number, balancing red ox reactions, application of red ox reactions. NCERT questions Unit-VIII.
21.	8 Nov. 12 Nov. 2010	5	Unit-XI	<b>HYDROGEN</b> Position of hydrogen in periodic table, occurrence, Isotopes preparation, properties and uses of hydrogen: hydrides ionic, covalent and interstitial physical and chemical properties of water, heavy water, and hydrogen peroxide – preparation, properties and structure: hydrogen as fuel. NCERT questions Unit-IX
22.	15 Nov. to 20 Nov. 2010  17 Nov (G.H.)	5	Unit-X	<b>S- BLOCK ELEMENTS (ALKALI AND ALKALINE EARTH METALS)</b> Preparation and properties of some important compounds sodium – carbonate, sodium chloride, sodium hydroxide, and sodium hydrogen carbonates, biological importance of Mg and Ca.
23.	22 Nov. to 24 Nov. 2010	3	Unit-X	<b>S- BLOCK ELEMENTS (ALKALI AND ALKALINE EARTH METALS)</b> Importance of sodium and potassium. CaO, CaCO <sub>3</sub> , and industrial use of lime and Lime stone, biological importance of Mg and Ca. NCERT questions Unit-X
24.	25 Nov to 27 Nov. 2010	3	Unit-XI	<b>SOME P – BLOCK ELEMENTS</b> General introduction to p- Block Elements <b>Group 13, Elements</b> ; General introduction, electronic configuration occurrence, variation of properties oxidation state. Trends in chemical reactivity anomalous properties of first element of the group, boron – physical and chemical properties. Some important compounds : Borax Boric acid boron hydrides Aluminum: uses, reactions and acids and alkalis.

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25.	29 Nov. to 04 Dec. 2010  03 Nov. (LWD)	5	Unit-XI	<b>SOME P – BLOCK ELEMENTS</b> <b>Group 14, Elements:</b> General introduction, electronic configuration, occurrence, variation of properties, oxidation state, trends in chemical reactivity. Anomalous behavior of first element, carbon catenation allotropic forms, physical and chemical Properties: use of some important compound: oxides of carbon. Important compound of silicon and few uses: silicon tetra chloride, silicones, silicates and zeolites. NCERT questions Unit-XI
26.	06 Dec to 09 Dec. 2010	4		<b>REVISION</b>
27.	10 Dec. 2010	1		<b>SECOND CCEP EXAM</b>
28.	13 Dec. to 22 Dec. 2010	7		<b>SECOND TERM EXAMS</b>
29.	23 Dec. to 24 Dec. 2010	2		<b>DISCUSSION OF SECOND TERM QUESTION PAPER</b>
30.	27 Dec. 2010 to 07 Jan. 2011	12		<b>WINTER BREAK</b>
31.	10 Jan. to 15 Jan. 2011	6	Unit-XII	<b>ORGANIC CHEMISTRY SOME BASIC PRINCIPLE AND TECHNIQUES</b> General introduction, method qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electronic effect, resonance and hyper conjugation
32.	17 Jan. to 22 Jan. 2011	6	Unit-XII  Unit-XII	<b>ORGANIC CHEMISTRY SOME BASIC PRINCIPLE AND TECHNIQUES</b> Homolytic and Hetrolytic fission of a covalent bond: free radicals, carbonations, electrophiles and nucleophiles, types of organic reactions. NCERT questions Unit-XII <b>HYDROCARBONS</b> Classification of Hydrocarbons Alkenes – Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenations, combustion and paralyis.

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33.	24 Jan. to 29 Jan. 2011  31 Jan. (LWD)	5	Unit-XII	<b>HYDROCARBONS</b> Alkenes – Nomenclature, structure of double bond (Ethene) geometrical isomerism, physical properties, methods of preparation. Chemical reactions : addition of hydrogen, Halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis oxidation, mechanism of electrophilic addition. Alkynes – Nomenclature, structure of triple bond (ethyne) physical properties and methods of preparation, chemical reactions: acidic character of alkynes addition reactions of hydrogen, halogen, water, hydrogen halides.
34.	01 Feb. to 5 Fe. 2011	5	Unit-XII	<b>HYDROCARBONS</b> Aromatic hydrocarbons: Introduction IUPAC nomenclature : Benzene: resonance aromatic; chemical properties: mechanism of electrophilic substitution – nitration, sulphonation, halogenations, friedel craft's alkylation's and Acylation directive influence of functional group in mono substituted benzene, carcinogenicity and toxicity. NCERT questions Unit-XIII
35.	07 Feb. to 27 Feb. 2011 28 Feb (LWD)	15		<b>RIVISON OF UNIT 1 – XIV AND FINAL PRACTICAL EXAMS</b>
36.	1 March to 16 March 2011	16		<b>COMMON ANNUAL EXAMS 2011</b>
37.	31 March 2011	1		<b>ANNOUNCEMENT OF RESULT OF ANNUAL EXAMINATIONS</b>

**PREPARED BY:**

**(1) Mrs. SUNILA WADHWA  
Govt. Co. Ed. Sr. Sec. School  
LAJPAT NAGAR**

**(2) Dr. AMITA PURI  
RAJKIYA PRATIBHA VIKAS VIDYALAYA  
LAJPAT NAGAR**