CHHATRAPATI SHIVAJI SCIENCE JUNIOR COLLEGE LATUR

XI Science Teaching Program
Plan
2015/16

CHHATRAPATI SHIVAJI SCIENCE JUNIOR COLLEGE LATUR

Subject

Chapter	Title	Periods
Chapter I	Measurements	20
1.1	Need forMeasurements :	
1.2	Units for measurements :	
1.3	System of units :	
1.4	S.I. Units:	
1.5	Fundamental and derived units:	
1.6	Dimensional Analysis :	
1.7	Order of magnitude and significiant figures :	
1.8	Accuracy and errors in measurements :	

Chapter	Title	Periods
Chapter 2	Scalars and vectors	15
2.1	Addition and subtraction of vectors:	
2.2	Product of vectors :	
Chapter 3	Projectile motion	25
3.1	Uniformly accelerated motion along a straight line:	
3.2	Position-Time(X-t) graph and velocity-time (V-t) Graph:	
3.3	Equation of path of a projectile	
3.4	Time of flight (T):	
3.5	Horizontal range :	
3.6	Maximum Height of Projectile (H) :	

Chapter	Title	Periods
Chapter 4	Force	30
4 . I	Types of force :	
4.2	General idea of gravitational, electromagnetic	
4.3	Law of conservation of momentum:	
4.4	Elastic and inelastic collisions:	
4.5	Inertial and non-inertial frames :	
4.6	Moment of force :	
4.7	Couple and properties of couple :	
4.8	Centre of mass :	
4.9	Centre of gravity:	
4.10	Conditions of equilibrium of a rigid body	

Chapter	Title	Periods
Chapter 5	Friction in solids and liquids	30
5.1	Origin and nature of frictional force :	
5.2	Law of static friction :	
5.3	Law of kinetic friction :	
5.4	Pressure due to fluid column :	
5.5	Pascal's law and its applications :	
5.6	Effect of gravity on fluid pressure :	
5.7	Viscosity:	
5.8	Streamline flow :	
5.9	Turbulent flow:	
5.10	Viscous force :	
5.11	Newton's formula :	
5.12	Stokes 'law :	
5.13	Equation for terminal velocity:	
5.14	Reynold's number :	
5.15	Bernoulli's principle :	

Chapter	Title	Periods
Chapter 6	Sound waves	15
6.1	Waves and oscillation :	
6.2	Progressive wave :	
6.3	Characteristics of transverse wave :	
6.4	Characteristics of longitudinal wave :	
6.5	Sound as a longitudinal wave motion :	
6.6	Relation between velocity, wavelength and frequency:	
6.7	Newton's formula for velocity of sound :	
6.8	Laplace's correction :	
6.9	Musical sound and Noise :	
6.10	Musical scale :	

Chapter	Title	Periods
Chapter 7	Thermal Expansion	18
7.1	Temperature and heat:	
7.2	Measurements of temperature :	
7.3	Ideal gas equation and absolute temperature :	
7.4	Thermal expansion :	
7.5	Specific heat capacity :	
7.6	Calorimetry:	
7.7	Change of state :	
7.8	Latent heat :	
7.9	Heat transfer :	

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Chapter	Title	Periods
Chapter 8	Refraction of light	25
8.1	Refraction of monochromatic light :	
8.2	Snell's law :	
8.3	Total internal reflaction :	
8.4	Critical angle :	
8.5	Optical fibre:	
8.6	Dispersion of light:	
8.7	Prism formula:	
8.8	Angular dispersion and dispersive power :	
8.9	Rainbow:	
8.10	Scattering of light :	
8.11	Blue colour of sky :	
8.12	Colour of sun at sunrise and sunset :	

Chapter	Title	Periods
Chapter 9	Ray optics:	25
9.1	Reflection of light by spherical mirrors :	
9.2	Refraction at single curved surface :	
9.3	Lens maker's equation :	
9.4	Concept of conjugate foci :	
9.5	Combination of thin lenses in contact :	
9.6	Magnifying power of simple microscope :	
9.7	Magnifying power of compound microscope :	
9.8	Magnifying power of telescope :	
9.9	Reflection telescope :	

Chapter	Title	Periods
Chapter 10	Electrostatics	30
10.1	Frictional electricity:	
10.2	Charges and their conservation :	
10.3	Coulomb's law and dielectric constant:	
10.4	Force between multiple electric charges :	
10.5	Superposition principle of forces :	
10.6	C ontinuous distribution of charges :	
10.7	Concept of charge density :	
10.8	Electric field intensity due to a point charge :	
10.9	Electric lines of force :	
		Cont

Chapter	Title	Periods
Chapter 10	Electrostatics	30
10.10	Electric dipole and electric dipole moment :	
10.11	Electric potential energy :	
10.12	Electric potential difference :	
10.13	Electric potential due to a point charge :	
10.14	Equipotential surfaces	
10.15	Potential energy in and external field :	
10.16	Volt, electron-volt :	

Chapter	Title	Periods
Chapter II	Current electricity	20
11.1	Ohm's law:	
11.2	Resistance:	
11.3	Specific resistance (Resistivity) :	
11.4	Temperature dependence of resistance :	
11.5	Colour code for resistors:	
11.6	EMF and internal resistance of cell:	
11.7	Work done by electric current :	
11.8	Power in electric circuit :	

Chapter	Title	Periods
Chapter 12	Magnetic effect of electric current	20
12.1	Biot-savart's law (Laplace's law) :	
12.2	Right hand thumb rule :	
12.3	Magnetic induction	
12.4	Magnetic induction at a point along the axis of a coil	
12.5	Force acting on a conductor carrying current	
12.6	Fleming's left hand rule :	
12.7	Force between two infinitely long current carrying	
12.8	Definition of ampere :	
12.9	Torque on a current loop in magnetic field :	

Chapter	Title	Periods
Chapter 13	Magnetism	20
13.1	Origin of magnetism due to moving charges :	
13.2	Definition of magnetic dipole moment and its unit :	
13.3	(a) Equivalence between a magnetic dipole (magnet)	
13.4	Torque acting	
13.5	Earth's magnetic field :	
13.6	Electromagnet and factors affecting their strength :	
13.7	Magnetic induction	

Chapter	Title	Periods
Chapter 14	Electromagnetic waves	10
14.1	Electromagnetic waves and their characteristics:	
14.2	Transverse nature of electromagnetic waves :	
14.3	Electromagnetic spectrum :	
14.4	Propagation of electromagnetic waves	

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Subject Chemistry I

Chapter Title Peri		Periods
Chapter I	Some Basic concepts of chemistry	30
1.0	Prominent scientists	
1.1	Introduction	
1.2	Importance and scope of chemistry	
1.3	Historical approach to particulate nature of matter	
1.4	Laws of chemical combination	
1.5	Dalton's atomic theory	
1.6	Concept of elements, atoms and molecules	
1.7	Atomic and molecular masses	
1.8	Avogadro's law, Avogadro's number and mole concept	
1.9	Percentage composition and empirical and molecular	
1.10	Chemical reaction, stoichiometry and calculations based	

Chapter	Title	Periods
Chapter 2	States of matter (Gases and Liquids)	12
2.0	Prominent scientists	
2.1	Introduction	
2.2	The three states of matter	
2.3	Intermolecular interactions	
2.4	Hydrogen bonding	
2.5	The gaseous state	
2.6	Boyle's law	
2.7	Charles's law	
2.8	Gay lussac's law	
2.9	Avogadro's law	
		Cont

Chapter	Title	Periods
Chapter 2	States of matter (Gases and Liquids)	12
2.10	Ideal behaviour, ideal gas equation	
2.11	Deviations from ideal behaviour	
2.12	Liquefaction of gases and critical temperature	
2.13	Kinetic theory-molecular speeds	
2.14	Liquid state	
2.15	Vapour pressure	
2.16	Surface tension	
2.17	Viscosity.	

Chapter	Title	Periods
Chapter 3	Structure of ATOM	20
3.0	Prominent Scientists	
3.1	Introduction	
3.2	Discovery of electron	
3.3	Discovery of proton	
3.4	Discovery of neutron	
3.5	Concept of atomic number	
3.6	Isotopes and isobars	
3.7	Atomic models (Thomson model)	
3.8	Rutherford's atomic model and its limitations	
3.9	Bohr's model for H and H like atoms	
		Cont

Chapter	Title	Periods
Chapter 3	Structure of ATOM	20
3.10	Concept of shells and subshells	
3.11	Dual nature of matter and light	
3.12	de-broglie equation	
3.13	Heisenberg's uncertainty principle	
3.14	Concept of atomic orbital	
3.15	Quantum numbers	
3.16	Shapes of orbitals.	
3.17	Rules for filling electrons in orbitals	
3.18	Electronic configuration of the elements	
3.19	Stability of half filled and completely filled orbitals	

Chapter	Title	Periods
Chapter 4	Periodic table	12
4.0	Prominent scientists	
4.1	Introduction, significance of classification	
4.2	Brief history of the development of periodic table	
4.3	Modern periodic law and present form of periodic table	
4.4	Periodic trends in properties of elements	

Chapter	Title	Periods
Chapter 5	Redox Reactions	6
5.0	Prominent scientists	
5.1	Introduction	
5.2	Concept of oxidation and reduction	
5.3	Redox reactions	
5.4	Oxidation number	
5.5	Balancing of equations of Redox.	
5.6	Applications of Redox reactions	

Chapter	Tit	:le	Periods
Chapter 6	Chemical equilibrium		40
6.1	Prominent scientists		
6.2	Lonic Equilibria		
Chapter 7	Surface Chemistry		12
7.0	Prominent scientists		
7.1	Introduction		
7.2	Adsorption		
7.3	Catalysis		

Chapter	Title	Periods
Chapter 8	Nature of chemical bond	30
8	Prominent scientists	
8.1	Introduction	
8.2	Ionic bond	
8.3	Covalent bond	
8.4	Lewis structure	
8.5	Bond parameters	
8.6	Resonance	
8.7	Polar character of covalent bond	
		Cont

Chapter	Title	Periods
Chapter 8	Nature of chemical bond	30
8.8	Covalent character of ionic bond	
8.9	Valence bond theory	
8.10	Hybridisation	
8.11	Geometry of molecules	
8.12	Valence shell electron pair repulsion theory	
8.13	Importance of valence bond theory	
8.14	Molecular orbital theory	
8.15	Hydrogen bonding	

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Chemistry II

Chapter	Title	Periods
Chapter 9	Hydrogen	10
9	Prominent scientists	
9.1	Introduction, position of hydrogen in periodic table	
9.2	Occurrence of hydrogen (Dihydrogen)	
9.3	Isotopes of hydrogen	
9.4	Preparation of dihydrogen	
9.5	Properties of dihydrogen	
9.6	Uses of dihydrogen	
9.7	Hydrides (ionic, covalent, interstitial)	
9.8	Water (physical and chemical properties of water	
9.9	Heavy water	
9.10	Hydrogéna Peroxyde (Préparation Propretés ,structure)	
9.11	Hydrogen as a fuel	

Chapter	Title	Periods
Chapter 10	s-Block elements	15
10.0	Prominent scientists	
10.1	General introduction. Electronic configuration	
10.2	Occurrence of hydrogen (Dihydrogen)	
10.3	Anomalous properties of lithium	
10.4	Diagonal relationship between lithium ,magnesium	
10.5	Periodic trends of alkli elements (metals)	
10.6	Chemical reactivity of alkalimetals	
10.7	Important compounds of sodium	
10.8	Uses of alkali metals	
10.9	Biological importance of sodium and potassium	
		Cont

Chapter	Title	Periods
Chapter 10	s-Block elements	15
10.10	Group 2 element : alkaline earth elements	
10.11	Chemical reactivity of alkaline earth elements	
10.12	Uses of alkaline earth metals	
10.13	Diagonal relationship between beryllium, Aluminium	
10.14	Important compounds of calcium metal	
10.15	Biological importance of magnesium and calcium	

Chapter	Title	Periods
Chapter II	p-Block elements (Group 13 and 14)	15
11.0	Prominent Scientists	
11.1	General introduction.	
11.2	Introduction of boron family	
11.3	Occurrence of hydrogen (Dihydrogen)	
11.4	Variation in properties	
11.5	Chemical properties	
11.6	Anomalous properties of boron	
11.7	Physical and chemical properties of boron	
11.8	Important compounds of boron	
11.9	Uses of aluminium	
		Cont

Chapter	Title	Periods
Chapter II	p-Block elements (Group 13 and 14)	15
11.10	Reactions of acids and Alklies with Aluminium	
11.11	Introduction of group 14 elements	
11.12	Trends in chemical properties	
11.13	Anomalous Behaviour of carbon	
11.14	Catenation	
11.15	Allotropes of carbon	
11.16	Physical and chemical properties of carbon, uses crbon	
11.17	Important compounds of carbon	
11.18	Compounds of silicon	
12.00	Basic principles and techniques in organic chemistry	

Chapter	Title	Periods
Chapter 12	Prominent scientists	45
12.1	General introduction, importance of organic chemistry	
12.2	Methods of purification of organic compounds	
12.3	Qualitative analysis of organic compounds	
12.4	Quantitative analysis of organic compounds	
12.5	Tetravelencey of carbon atom. Structural representation	
12.6	Classification and IUPAC nomenclature of organic	
12.7	Fundamental concepts in organic reaction	
12.8	Bond fission, homolytic and heterolytic fission	
12.9	Types of reagents	
12.10	Types of organic reactions.	

Chapter	Title	Periods
Chapter 13	Alkanes	15
13.0	Prominent scientist	
13.1	Introduction	
13.2	Structure formula	
13.3	Isomerism	
13.4	Conformations of ethane	
13.5	Nomenclature	
13.6	Methods of preparation	
13.7	Physical properties	
13.8	Chemical properties	
13.9	Uses	

Chapter	Title	Periods
Chapter14	Alkenes	20
14.0	Prominent scientist	
14.1	Introduction	
14.2	Electronic structure of ethene	
14.3	Isomerism in alkenes	
14.4	Nomenclature of alkenes	
14.5	Methods of preparation	
14.6	Physical properties	
14.7	Chemical properties	
14.8	Uses	

Chapter	Title	Periods
Chapter 15	Alkynes	15
15.0	Prominent scientist	
15.1	Introduction	
15.2	Electronic structure of Ethyne	
15.3	Nomenclature of alkynes	
15.4	Methods of preparation	
15.5	Physical properties	
15.6	Chemical properties	
15.7	Uses	

Chapter	Title	Periods
Chapter 16	Aromatic compounds	15
16.0	Prominent scientists	
16.1	Introduction	
16.2	Chracteristics of aromatic compounds	
16.3	Nomenclature of benzene derivatives	
16.4	Methods of preparation	
16.5	Chemical properties	
16.6	Carcinogenicity and toxicity	

Chapter	Title	Periods
Chapter 17	Environmental chemistry	6
17.0	Prominent scientists	
17.1	Introduction	
17.2	Environmental Pollution	
17.3	Atmospheric pollution	
17.4	Tropospheric pollution	
17.5	Global warming and green house effect	
17.6	Acid rain	
17.7	Particulate pollutants	
17.8	Smog	
		Cont

Chapter	Title	Periods
Chapter 17	Environmental chemistry	6
17.9	Stratospheric pollution (Ozone depletion)	
17.1	Water pollution	
17.11	Soil pollution	
17.12	Industrial waste	
17.13	Strategies to control environmental pollution	
17.14	Green chemistry	

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Biology

Chapter	Title	Periods
Chapter I	Diversity in organisms	20
1.1	Diversity in living organisms.	
1.2	Systematic : Taxonomy, taxonomic hierarchy	
1.3	Five kingdom system of classification	
1.4	Lichens	
1.5	Viruses and viroids	

Chapter	Title	Periods
Chapter 2	Kingdom Planta	20
2.1	Salient features of major plant groups	
2.2	Botanical Gardens and Herbaria-	
2.3	Taxonomic key	
2.4	Plant life cycles.	

Chapter	Title	Periods
Chapter 3	Biochemistry of cell	20
3.1	Basic chemical constituents of cell-	
3.2	Enzymes : Definition, Enzyme action	
3.3	Concept of metabolism	
Chapter 4	Cell division	15
4.1	Cell cycle	
4.2	Mitosis	
4.3	Meiosis	

Chapter	Title	Periods
Chapter 5	Morphology of flowering Plants	50
5.1	Mirphology and functions of different parts	
5.2	Floral formula, floral diagram and plant families.	
5.3	Plant tissues-meristematic, permanet and types	
5.4	Anatomy of-Root, Stem and leaf.	

Chapter	Title	Periods
Chapter 6	Plant Water Relations and Mineral Nutrition	25
6.1	Source of water and physical processes involved	
6.2	Absorption and movement of water	
6.3	Ascent of sap	
6.4	Transpiration	
6.5	Role of water	
6.6	Translocation of food	
6.7	Mineral nutrition	

Chapter	Title	Periods
Chapter 7	Plant growth and development	25
7.1	Seed dormncy	
7.2	Seed germination.	
7.3	Characteristics of growth.	
7.4	Phases of growth.	
7.5	Growth regulators.	
7.6	Photoperiodism.	
7.7	Photomorphogenesis	
7.8	Vernalization	

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Chapter	Title	Periods
Chapter 8	Kingdom Animalia	30
8.1	Criteria for animal classification.	
8.2	Salient features of Non-chordates Upto phylum level	
8.3	Salient features of chordates Upto class level.	
8.4	Zoological parks and museums.	
Chapter 9	Organization of cell	25
9.1	Cell theory	
9.2	Prokaryotic cell and its Ultra structure.	
9.3	Eukaryotic cell and its Ultra structure.	
9.4	Nuclear organization-Nucleus, Nucleoplasm , nucleolus	

Chapter	Title	Periods
Chapter 10	Study of animal tissues	20
10.1	Epithelial tissue :	
10.2	Connective tissue :	
10.3	Muscular tissue -	
10.4	Nervous tissue -	
Chapter II	Study of animal type	20
11.1	External features of cockroach	
11.2	Digestive system of cockroach	
11.3	Circulatory system of cockroach	
11.4	Nerous system of cockroach	
11.5	Respiratory system of cockroach	
11.6	Reproductive system of cockroach	

Chapter	Title	Periods
Chapter 12	Human nutrition	25
12.1	Digestive system of cockroach	
12.2	Physiology of digestion	
12.3	Absorption and assimilation	
12.4	Calorific value of nutrients	
12.5	Nutritional disorders	
Chapter 13	Human respiration	25
13.1	Respiration in animal	
13.2	Human respiratory system	
13.3	Mechanism of respiration	
13.4	Exchange of gases, transport of O2 and CO2	
13.5	Respiratory disorders	

Chapter	Title	Periods
Chapter 14	Human skeleton and locomotion	30
14.1	Human skeleton and locomotion	
14.2	Locomotion	
14.3	Mechanism of muscle movement	
14.4	Skeletal and muscular disorders	

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SUBJECT MATHEMATICS I

Chapter	Title	Periods
Chapter I	Angle and It's measurement	10
1.1	Directed Angles	
1.2	Systems of measurement of angles	
1.3	Relation between measure and radian measure	
1.4	Length of an are and area of sector	
Chapter 2	Trigonometric functions	10
2.1	Trigonometric functions with the help of standard unit circle	
2.2	Trigonometric functions of particular angles	
2.4	Fuhndamental identities	
2.5	Domain and range of trigonometric functions	
2.6	Periodicity of trigonometric (Circular) functions	
2.7	Trigonometric functions of negative angle	
2.8	Graphs for Trigonometric functions	

Chapter	Title	Periods
Chapter 3	Trigonometric functions of compound angles	10
3.1	Trigonometric functions of sum and difference theorem	
3.2	Trigonometric functions of Allied angles:	
3.3	Trigonometric functions of multiple angles:	
3.4	Trigonometric functions of half angles:	
Chapter 4	Factorization Formulae	10
4 . I	Formulae for conversion of sum or difference into products	
4.2	Formulae for conversion of product into sum or difference :	
4.3	Trigonometric functions of angles of triangle :	

Chapter	Title	P eriods
Chapter 5	Locus	10
5.1	Definition of locus	
5.2	Equation of locus :	
5.3	Point of the locus :	
5.4	Shift of origin :	
Chapter 6	Straight line	20
6.1	Inclination of a line:	
6.2	(1) Slope of a line	
6.3	Intercepts of a line the Axes:	
6.4	Equation of line in standard form :	
6.5	General equation of line :	
6.6	Two intersecting lines :	
6.7	Distance of a point from a line :	

Chapter	Title	Periods
Chapter 7	Circle and conics	10
7.1	Circle	
7.2	Conics:	
Chapter 8	Vectors	10
8.1	Definitions:	
8.2	Types of vectors :	
8.3	Algebra of vectors :	
8.4	Three dimensional geometry	
8.5	Product of vectors:	

Chapte	er Title	Periods
Chapter	9 Linear inequations	10
9.1	Linear inequations in one variable	
9.2	Linear inequations in two variables :	
Chapter	10 Determinants	10
10.1	Determinants:	
10.2	Applications of determinants :	
Chapter	II Matrices	10
11.1	Definition:	
11.2	Operations on matrices	
11.3	Transpose and properties of transpose of a matrix :	

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Subject Subject Mathematics II

Chapter	Title	Periods
Chapter 1	Set,s relations and functions	15
1.1	Revision	
1.2	Relations :	
1.3	Functions :	
Chapter 2	Logarithms	5
2.1	Definition	
2.2	Laws of logarithms :	
2.3	Change of base law (formula):	
2.4	Numerical problems :	

Chapter	Title	Periods
Chapter 3	Complex numbers	10
3.1	Complex numbers :	
3.2	Conjugate of a complex number :	
3.3	Algebra of complex numbers :	
3.4	Power and square root of a complex number :	
3.5	Properties of complex numbers :	
3.6	Argand digram :	
3.7	Polar form of complex number :	
3.8	Fundamental theorem of algebra :	
3.9	Cube roots of unity:	

Chapter	Title	Periods
Chapter 4	Sequence and series	20
4.1	Arithmetic progression (A.P) P:	
4.2	Geometric Progression (G.P):	
4.3	Sum of first n terms of a G. P.:	
4.4	Harmonic progression (H.P) :	
4.5	Means :	
4.6	Arithmetic-Geometric progression :	
4.7	Special series :	
4.8	Exponential series :	

Chapter	Title	Periods
Chapter 5	Permulations and combinations	10
5.1	Factorial notation:	
5.2	Fundamental principle of counting	
5.3	Permulation:	
5.4	Circular permutations :	
5.5	Combination:	
Chapter 6	Method of Induction and binomial theorem	15
6.1	Principle of mathematical induction :	
6.2	Binomial theorem for positive integral index :	
6.3	Binomial coefficients :	

Chapter	Title	Periods
Chapter 7	Limits	10
7.1	Meaning of x a	
7.2	The limit of a function :	
7.3	Algebra of limits :	
7.4	Limits of algebratic functions :	
7.5	Limits of trigonometic functions:	
7.6	Limit at infinity and infinite limits :	
Chapter 8	Differentiation	10
8.1	Definition of Deriative at a point :	
8.2	Geometric intepretation of derivative :	
8.3	Physical significance of a derivative :	

Chapter	Title	Periods
Chapter 9	Integration	15
9.1	Definition of integral of a function :	
9.2	Geometrical interpretation of indefinite integral:	
9.3	Integral of some standard functions :	
9.4	Rules of integration :	
Chapter 10	Statistics (Measures of dispersion)	10
10.1	Range and its coefficient :	
10.2	Quartile deviation (Q.D.) :	
10.3	Mean deviation :	
10.4	Variance and standard deviation :	
10.5	Effect of Change of origin and scale on variance	
10.6	Combined variance and standard deviation :	
10.7	Coefficient of variation:	

Chapter	Title	Periods
Chapter II	Probability	15
11.1	Revision	
11.2	Types of events :	
11.3	Addition theorem (Two events):	
11.4	Conditional probablity :	
11.5	ODDS (Ratio of two complementary probabilities):	