SPLIT UP OF SYLLABUS
CLASS XII

NAVODAYA VIDYALAYA SAMITI,

CLASS : XII SUBJECT : ENGLISH

Unit No	NameofTheChapter/unit	Marks
1	**Reading skills–** • unseen passages to assess comprehension • unseencase–basedpassage	**20**
2	**Creating writing skills** • Notice • Invitation • Letterwriting • ReportwritingandArticlewriting	**20**
3	**Flamingo Vistas:**	**40**
	Total	**80**
	InternalAssessmen	**20**
	GrandTotal	**100**

MONTH	NOOFDAYS	NO OF PERIODS	MainTopicandSub-TopicstobeCovered		Activities/Projects/ Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)
			Flamingo/Vistas	Reading &Advance Writing Skills	
APRIL2024	**21**	**21**	• TheLastLesson (Prose) • My Mother at Sixty Six (Poem) • The Third Level (Prose)	UnseenPassage. NoticeandInvitation & Replies (acceptance and regrets) **ASLProject**-Imposed Vs self-imposed linguistic Chauvinism in thepresentscenarioof academiclifeinthelight of'The Last lesson'. (Objective- focuses on the necessity to take steps to protect the regional languages from the influence of foreign language)	**ReadingSection**: PracticeinUnseen comprehension. **WritingSection**:Shortwritingtask– Notice Notice for Meeting, Notice for events like Competition/Tour/ Celebration/ Annual Sports/Culturaleventsetc.Noticefor Lost and Found. Formal/InformalInvitation and Replies up to 50 words. Invitation Practice work for invitation and Notice Students may be asked to prepare PPTs of Formal and Informal invitation.

MONTH	NOOFDAYS	NO OF PERIODS	MainTopicandSub-TopicstobeCovered		Activities/Projects/ Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)
			Flamingo/Vistas	Reading &Advance Writing Skills	
				Assignment- Write a letter to the Editorhighlighting/ expressing views on 'linguistic Chauvinism in the present scenario of academic life' Art Integrated Project – Based on the poem' My Mother at Sixty Six' Assignment- Create a flow chart to expand story of 'The Third Level'/ of events in the story.	Practice of drafting Invitation for different occasions and their replies. The studentsmaybe askedto writediary entry on a day when they were not prepared for test. Assessment Tool; Presentation by the students.
			PWT-I 26-29 April 2024		
JULY2024	**26**	**26**	1.LostSpring 2-KeepingQuiet 3.TheTigerKing	I.Unseenpassage toassessComprehension, interpretation and inference. .Unseen passages ; case-based passage with verbal/ visual inputs like statistical data, charts etc.	Activities; • Practice on Unseen passage to assess comprehension, interpretation and inference • Practice on Unseen case- based passage with verbal/visual inputs like statistical data, charts etc • Discussion on Health hazards of Child Labour. • PosteronChildlabour. • Visit the School of slum areas of locality talk to the students, teachers and their parents about the facilities provided to the students. Collect the data regarding facilities and on the basis of collected data write an article on "The Plight of the Students of Slum Areas" in about 120-150 words. Collect the data regarding government and NGOs activities to save tigers in India with the help of internet and library.. Article writing on ChildLabour .DiscussiononQuestionAnswer
AUGUST			• Deep water • The Rattrap	• Letter writing: Letter Based On Verbal	Activities ; • Collect letters to Editors from the

MONTH	NOOFDAYS	NO OF PERIODS	MainTopicandSub-TopicstobeCovered		Activities/Projects/ Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)
			Flamingo/Vistas	Reading &Advance Writing Skills	
	22	22	(Prose) • A Thing Of Beauty (Poem) • Journey To The End of The Earth (Prose)	/Visual Input. Application for job with bio data or resume. Letter to the Editor giving suggestion or opinion on issues of public interest.	columns of newspapers. • Understated the tone, style and organization .students will write letters to the Editor of a leading newspaper highlighting social/ political/ current issues. Teacher will collect the letters and discuss the content, tone, style, organization coherence etc. of each letter- • Browse the internet to find out at leas • 100 things of beauty and 100 things that cause suffering and pain. Enlist them and write. • Find the personalities and events from the history of sports, music dance etc. which proves that practice makes a man perfect. For example life of Sachin Tendulkar Sudha chandran etc. • Discussion on Question Answer Assessment Tool: Oral Test
			PWT-II 08-10 AUGUST 2024		
SEPTEMBER 2024	17	19	**1-** Indigo (Prose) **2-** Poets and Pancakes (Prose) **3-** A Roadside Stand (Poem) The Enemy	Article / Report writing, descriptive and analytical in nature based on verbal inputs.	4) Browse internet to get more information regarding film studio history Documentary film on Gandhi ji showing contribution on Indian National Movement may be shown. Students may be asked to write the Articles based on the Verbal inputs. 5) Practice of Speaking and Listening skills. 6) Students may be asked to read the Editorial columns of newspapers. Visual input/ verbal inputs may be given for writing letter to the Editor. 7) Write a report on the village market and super markets. Write your point of you on the decision taken by Dr. Sadao Write imaginary dialogues between Dr.

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			Flamingo/Vistas	Reading &Advance Writing Skills	
					Sadao and his wife on whether to save American soldier or not. Assessment Tool; 1.Oral Test 2. Written class test. 3. Group discussion on the prevalent issues. 4.Discussion on Question Answer
			Term I- 23 SEPTEMBER TO 04 OCTOBER 2024		
OCTOBER 2024	**17**	**19**	• The Interview(Prose) • Aunt Jennifer's • Tigers (Poem) • Going Places (Prose) • On the face of It.	1. Discussion and practice of Unseen passages . 2 .Discussion and practice on Report writing.	Collect reports from newspapers and rewrite them. Videos/ newspaper clippings may be shown to write reports following journalism expressions. Find the difference of present day women to Aunt Jennifer's as described in the poem Aunt Jennifer's tigers. Write an essay on the topic Fortune favours the Brave Discussion on the stories of minority heroes may be discussed Project work to be assigned.
NOVEMBER 2024	**20**	**20**	• Memories of Childhood • The Cutting of My • Long Hair • We Too Are Human Beings	1 Practice and revision of writing skills 3. ASL Practice.	The students may be given practice in writing various types of Reports. Group discussion on Condition of Women in the contemporary society, Gender Discrimination & Things that hurt disabled people Write an essay on the topic Fortune favours the Brave Discussion on the stories of minority heroes may be discussed
DEC 2024 / JAN. 2025				• Discussion and practice of unseen passages. Practice of Notice, Invitation, Letters and Report writing. Project work	
			1st Pre Board (4-14 December 2024) 2nd Pre Board (20-30 January 2025)		

NAVODAYA VIDYALAYA SAMITI

CLASS: 12 SUBJECT: हिन्दी SUBJECT CODE:302

इकाई सं	इकाई / पाठकानाम	उप–भारांक	भारांक
	खंडअ (वस्तुपरकप्रश्न)		
1.	**अपठितगद्यांश** 7) एकअपठितगद्यांश (अधिकतम 300 शब्दोंका) (1 अंक x 10 प्रश्न) 8) दोअपठितपद्यांशोमेंसेकोईएकपद्यांश (अधिकतम (150 शब्दोंका) (1 अंक x 5 प्रश्न)	10 5	**15**
2.	**पाठ्यपुस्तकअभिव्यक्तिऔरमाध्यमकीइकाईएकसेपाठसंख्या 3,4 तथा 5 परआधारित** • बहुवैकल्पिकप्रश्न (1 अंक x 5 प्रश्न)	5	**5**
3.	**पाठ्यपुस्तकआरोहभाग -2 सेबहुविकल्पात्मकप्रश्न** • पठितकाव्यांशपरपाँचबहुविकल्पीप्रश्न (1 अंक x 05 प्रश्न) • पठितगद्यांशपरपाँचबहुविकल्पीप्रश्न (1 अंक x 05 प्रश्न)	5 5	**10**
4.	**पूरकपाठ्यपुस्तकवितानभाग -2 सेबहुविकल्पीप्रश्न** • पठितपाठोंपरदसबहुविकल्पीप्रश्न (1 अंक x 10 प्रश्न)	10	**10**
	खंड-ब (वर्णनात्मकप्रश्न)		

5.	**पाठ्यपुस्तक**, **अभिव्यक्तिऔरमाध्यमसेसृजनात्मकलेखनऔरव्यावहारिकलेखनपाठसंख्या**3,4,5,11,12 **तथा**13**परआधारित।** • दियेगएचारअप्रत्याशितविषयोंसेकिसीएकविषयपरलगभग 120 शब्दोंमेंरचनात्मकलेखन (6अंक x 1 प्रश्न) • कहानीकानाट्यरूपांतरण/रेडियोनाटक/अप्रत्याशितविषयोंपरलेखनपरआधारितदोप्रश्न (3अंकx 2 प्रश्न) (विकल्पसहित) (लगभग60शब्दोंमें) (iii) पत्रकारिताऔरजनसंचारमाध्यमोंकेलिएलेखनपर आधारिततीनमेंसेदोप्रश्न (4 अंक x 2 प्रश्न) (विकल्पसहित((लगभग 80 शब्दोंमें)	6 6 8	20
6.	**पाठ्यपुस्तकआरोहभाग2-** • काव्यखंडपरआधारिततीनप्रश्नोंमेंसेकिन्हींदोप्रश्नोंकेउत्तर (लगभग 60 शब्दोंमें) (3 अंकx 2 प्रश्न) • काव्यखंडपरआधारिततीनप्रश्नोंमेंसेकिन्हींदोप्रश्नोंकेउत्तर (लगभग 40 शब्दोंमें) (2 अंकx 2 प्रश्न) • गद्यखंडपरआधारिततीनप्रश्नोंमेंसेकिन्हींदोप्रश्नोंकेउत्तर (लगभग 60 शब्दोंमें) (3 अंकx 2 प्रश्न) • गद्यखंडपरआधारिततीनप्रश्नोंमेंसेकिन्हींदोप्रश्नोंकेउत्तर (लगभग40 शब्दोंमें) (2अंकx 2 प्रश्न)	6 4 6 4	20
7.	• श्रवणएवंवाचन | • परियोजनाकार्य|	10 10	**20**
	कुल	100	**100**

प्रस्तावितपुस्तकें

- आरोहभाग -2, एन. सी. ई. आर. टी., नईदिल्लीद्वाराप्रकाशित
- वितानभाग- 2 ,एन .सी.ई .आर .टी ,.नईदिल्लीद्वाराप्रकाशित
- अभिव्यक्तिऔरमाध्यमएन .सी .ई .आर .टी., नईदिल्लीद्वाराप्रकाशित

हटाए गए पाठ :

गद्य खंड: सहर्ष स्वीकारा है।, गज़ल(फिराक गोरखपुरी),

पद्य खंड: चार्ली चाप्लिन यानी हम सब, नमक । वितान : ऍन फ्रैंक – डायरी के पन्ने ।

(सी बी एस ई पाठ्यक्रम **2023-24** पर आधारित)

पाठ्यक्रम विभाजन – सत्र 2024-25 (हिंदी आधार – कक्षा बारहवीं)

माह	दिन	कालांश	पाठ / उप-पाठ का नाम			क्रिया –कलाप / परियोजना कार्य
			आरोह भाग –एक	वितान भाग – एक	अभिव्यक्ति और माध्यम/ रचनात्मक लेखन	
अप्रैल, 2024	24	28	**गद्य खंड:** भक्तिन – महादेवी वर्मा **पद्य खंड:** ○ आत्मपरिचय ○ एक गीत – हरिवंशराय बच्चन	सिल्वर वेडिंग - मनोहर श्याम जोशी	विभिन्न माध्यमों केलिए लेखन	पीढ़ी का अंतराल - वादविवाद
प्रथम इकाई परीक्षा						
जुलाई, 2024	26	30	**गद्य खंड:** V) बाज़ार दर्शन – जैनेन्द्र कुमार VI) काले मेघा पानी दे- धर्मवीर भारती **पद्य खंड :** • पतंग - आलोक धन्वा • कविता के बहाने – कुंवर नाराय • बात सीधी थी - कुवंर नारायण	सिल्वर वेडिंग - मनोहर श्याम जोशी	अपठित गद्यांश अपठित पद्यांश	उपभोक्तावादी संस्कृति एवं उसके समाज पर दुष्प्रभाव -परिचर्चा ‘पानी बचाओ’विषय से जुड़े विज्ञापनों का संकलन।
अगस्त 2024	25	28	**गद्य खंड:** • पहलवान की ढोलक – - फणीश्वरनाथ रेणु **पद्य खंड:** vi) कैमरे में बंद अपाहिज - रघुवीर सहाय vii) उषा - शमशेर बहादुर सिंह	जूझ - आनंद यादव	कैसे करें कहानी का नाट्य रूपांतरण, कैसे बनता है रेडियो नाटक, नए और अप्रत्याशित विषयों पर लेखन	प्राचीन काल एवं आधुनिक काल के खेलों को सूचीबद्ध करना।
द्वितीय इकाई परीक्षा						

सितंबर, 2024	17	19	**पद्य खंड:** • बादल राग - सूर्यकांतत्रिपाठी निराला • कवितावली - तुलसीदास • लक्ष्मण मूर्छा एवं राम का विलाप-तुलसीदास **गद्य खंड:** • शिरीष के फूल – हज़ारी प्रसाद द्विवेदी	अतीत में दबे पांव – ओम थानवी	पुनरावृत्ति	तुलसीदास के साहित्य में प्रयुक्त छंद व काव्य रूपों की सूची बनाना। **प्रथम सत्रांक परीक्षा**
अक्तूबर, 2024	21	24	**पद्य खंड:** • रुबाइयां- फिराक गोरखपुरी • छोटा मेरा खेत-उमाशंकर जोशी पुनरावर्तन		पत्रकारीय लेखन के विभिन्न रूप और लेखन प्रक्रिया ।	विद्यार्थियों द्वारा देखे गए किसी ऐतिहासिक स्थल की परिचर्चा।
नवंबर, 2024	20	23	**गद्य खंड:** • श्रम विभाजन और जाति प्रथा • मेरी कल्पना का आदर्श समाज-भीमराव अम्बेडकर **पद्य खंड:** बगुलों के पंख-उमाशंकर जोशी		विशेष लेखन - स्वरूप और प्रकार ।	अंबेडकर की कल्पना में आदर्श समाज -- वादविवाद ।
दिसंबर 2024			पुनरावृत्ति **प्री-बोर्ड प्रथम**			
जनवरी 2025			प्रीबोर्ड द्वितीय			

NAVODAYA VIDYALAYA SAMIT
Split up of syllabus 2024-25

CLASS: XII SUBJECT: MATHEMATICS

UNIT	Name of The Units	No .of Periods	Marks
I	RELATIONS AND FUNCTIONS	30	08
II	ALGEBRA	50	10
III	CALCULUS	80	35
IV	VECTORS & THREE-DIMENSIONAL GEOMETRY	30	14
V	LINEAR PROGRAMMING	20	05
VI	PROBABILITY	30	08
	TOTAL	240	80
	Internal Assessment (20Marks) A.Unit Tests (Best 2 out of 3 tests conducted) (10 Marks) B. Mathematics Activities (10 Marks) 1.The activities performed by the student throughout the year end record keeping (05 Marks) 2.Assessment of the activity performed during the year end test (03 Marks) 3.Viva-voce (02 Marks)		20
	Grand Total		100

SPLIT-UP SYLLABUS

MONTH	No. of Days	No. of Periods	Main topic and sub-topics to be covered	Activities/ Projects/Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)	
APRIL 2024	22	25 25	**UNITII ALGEBRA** **MATRICES:** Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operations on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. Non- commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries). **DETERMINANTS:** Determinant of a square matrix (up to 3 x 3 matrices), minors, co-factors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.	**Activity -1** Word problems based on matrices. Formatting of matrix. Finding the solution by using matrix method.	UNIT TEST-1 FROM (26-04-24 TO 29-04—24)

MONTH	No. of Days	No. of Periods	Main topic and sub-topics to be covered	Activities/ Projects/Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)	
JULY,2024	26	15 15 20	**UNIT I (RELATIONS AND FUNCTIONS)** **RELATIONS AND FUNCTIONS** Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions. **INVERSE TRIGONOMETRIC FUNCTIONS:** Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions. **UNIT III-CALCULUS** **CONTINUITYAND DIFFERENTIABILITY:** Continuity and differentiability, chain rule, derivatives of inverse trigonometric functions like $\sin^{-1}x, \cos^{-1}x$ *and* $\tan^{-1}x$, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives.	Activity -2 To demonstrate a function which is one - one not onto Activity -3 To explore the principal value of the function $\sin^{-1}x$ using a unit circle	
AUGUST 2024	22	10 20	**APPLICATIONS OF DERIVATIVES:** Applications of derivatives: rate of change of quantities, increasing/decreasing functions, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations). **INTEGRALS:** Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, Evaluation of simple integrals of the following types and problems based on them. $\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{ax^{2+bx+c}}}$ $\int \frac{px+q}{ax^2+bx+c}dx, \int \frac{px+q}{\sqrt{ax^{2+}bx+c}}dx, \int \sqrt{a^2 \pm x^2}\,dx, \quad \int \sqrt{x^2 - a^2}dx$ $\int \sqrt{ax^2+bx+c}dx, \int (px+q)\sqrt{ax^2+bx+c}\,dx$ Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.	Activity -4 To find analytically the limit of function f(x) at x= c and also to check the continuity of the function at that point. Activity -5 To Understand the concept of decreasing and increasing functions Activity -6 To understand the concepts of local minima, local maxima and point of inflection	UNIT TEST-2 FROM (08-08-23 TO 10-08-23)

MONTH	No. of Days	No. of Periods	Main topic and sub-topics to be covered	Activities/ Projects/Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)	
SEPTMBAR 2024	16	15 15	**APPLICATIONS OF THE INTEGRALS:** Applications in finding the area under simple curves, especially lines, circles/parabolas/ellipses (in standard form only). **DIFFERENTIAL EQUATIONS:** Definition, order and degree, general and particular solutions of a differential equation. Solution of differential equations by method of separation of variables. Solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type $\frac{dy}{dx}$+py=q, where p and q are functions of x or constants. $\frac{dx}{dy}$+px=q, where p and q are functions of y or constants.	Activity -7 To construct an open box of maximum volume from a given rectangular sheet by cutting equal squares from each corner.	
			TERM I EXAMINATION (23-09-24 TO 03-10-24) **UPTO SEPTEMBER PORTION**		
OCTOBER2024	18 16	10 15	**UNIT V** **LINEAR PROGRAMMING:** Introduction, related terminology such as constraints, objective function, optimization, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints). **UNIT:IV** **VECTOR ALGEBRA:** Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors.	Activity -8 To verify geometrically that $\bar{c}$ x ($\bar{a}$ + $\bar{b}$) = $\bar{c}$ x $\bar{a}$ + $\bar{c}$ x $\bar{b}$	

MONTH	No. of Days	No. of Periods	Main topic and sub-topics to be covered	Activities/ Projects/Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)	
NOV-24	20	15 30	**THREE-DIMENSIONAL GEOMETRY:** Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, skew lines, shortest distance between two lines. Angle between two lines. **PROBABILITY:** Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean of random variable.	Activity -9 To demonstrate the shortest distance between two lines. Activity -10 To explain the computation of conditional Probability of a given event A, when event B has already occurred, through an example of throwing a pair of dice.	
DECEMBER2024/ JANUARY 2025			**REVISION (PRACTICE PAPERS)** **PRE-BOARD I AND II** **CBSE EXAMS AS PER THE SCHEDULE**		

Prescribed Books:

- Mathematics Part I - Textbook for Class XII, NCERT Publication
- Mathematics Part II - Textbook for Class XII, NCERT Publication
- Mathematics Exemplar Problem for Class XII, Published by NCERT
- Mathematics Lab Manual class XII, published by NCERT
  http://www.ncert.nic.in/exemplar/labmanuals.html

Note:

The activities listed above are suggestive only. Teachers are advised to refer the Lab Manual for class XII, published by CBSE. Throughout the year any 10 activities shall be performed by the student from the activities given in the Lab Manual.

NAVODAYA VIDYALAYA SAMITI

CLASS: XII SUBJECT:PHYSICS SUBJECT CODE: 042

UnitNo	NameofTheChapter/unit	Periods	Marks
1	**Electrostatics**	26	16
	Chapter-1:ElectricchargesandFields		
	Chapter-2:ElectrostaticPotentialandCapacitance		
2	**CurrentElectricity**	18	
	Chapter-3:CurrentElectricity		
3	**MagneticeffectsofcurrentandMagnetism**	25	17
	Chapter-4:MovingChargesandMagnetism		
	Chapter-5:MagnetismandMatter		
4	**ElectromagneticInductionandAlternatingCurrents**	24	
	Chapter-6:ElectromagneticInduction		
	Chapter-7:AlternatingCurrents		
5	**Electromagneticwaves**	04	18
	Chapter-8:ElectromagneticWaves		
6	**Optics**	30	
	Chapter-9:RayOpticsandOpticalInstruments		
	Chapter-10:WaveOptics		
7	**DualNatureofRadiationandMatter**	8	12
	Chapter-11:DualNatureofRadiationandMatter		
8	**AtomsandNuclei**	15	
	Chapter-12:Atoms		
	Chapter-13:Nuclei		
9	**ElectronicDevices**	10	7
	Chapter-14:semiconductor Electronics:Materials,Devicesandsimplecircuits		
	Total	160	70
	Practical/InternalAssessment		30
	GrandTotal		100

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
APRIL 2024	**22**	**26**	**16**	**Unit I: Electrostatics:** **Chapter–1: Electric Charges and Fields** Electric charges, Conservation of charge, Coulomb's law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside). **Chapter–2: Electrostatic Potential and Capacitance** Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor (no derivation, formulae only	**Experiments : 1&2** (1. Determine Resistivity of wires using V-I curve 2. Determine the Resistance of a given wire using Meter bridge) **Activity:1** To assemble the house hold circuit comprising 3 bulbs, 3 switches , a fuse and a power source	**Unit Test-1 /Assignment - 1** (Related to Electrostatics)

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
JULY 2024	24	18 12	17	**UnitII: CurrentElectricity:** **Chapter–3:CurrentElectricity** Electric current, flow of electric charges in a metallicconductor, drift velocity, mobility and their relationwith electric current; Ohm's law, V-I characteristics(linear and non-linear), electrical energy and power,electricalresistivityandconductivity,temperaturedependenceofresistance, Internalresistanceofacell,potential difference and emf of a cell, combination ofcellsinseriesandinparallel,Kirchhoff's rules,Wheatstonebridge **Unit III: Magnetic Effects of Current and Magnetism** **Chapter–4:** Moving Charges and Magnetism Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields. Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere.	**Experiments: 3&4** 3. Verify the laws of combination of R's in series or Parallel using Meter bridge 4. Determine the resistance of a galvanometer by half deflection method and to find its figure of merit **Activity:2** To study the variation of potential drop with length of a wire for a steady current	**Assignment-2** Based on Current Electricity

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
AUGUST 2024	25	13 18		Torque experienced by a current loop in uniform magnetic field; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer, its current sensitivity and conversion to ammeter and voltmeter. Chapter–5: Magnetism and Matter Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties **Chapter–5: Magnetism and Matter** Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of Materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of Temperature on magnetic properties	**Experiments: 5&6** (5. Find the refractive index of the material of a glass slab using travelling microscope 6. .Find the focal length of a concave mirror u.. v method) **Activity: 3&4** To measure the resistance ,voltage (AC/DC/), Current (AC/DC) and check continuity of a given circuit using multi meter To identify a diode , LED, a resistor and a capacitor from a mixed collection of such items .	Unit Test-2 **Assignment-3** (Based on Magnetism)

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
SEPTEMBER 2024	**24**	**6** **4** **20**	**18**	power in AC circuits, power factor, wattles current. AC generator, Transformer **Unit V: Electromagnetic waves** **Chapter–8: ElectromagneticWaves**Basicideaofdisplacement Current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only) Electromagnetic spectrum (radio waves, microwaves, infrared,visible,ultraviolet, X-rays,gammarays) includingelementaryfactsabouttheiruses. **UnitVI:Optics** **Chapter–9:RayOpticsandOpticalInstruments** **RayOptics:**Reflectionoflight,spherical mirrors, mirrorformula,refractionoflight,totalinternal reflectionandopticalfibers,refractionatspherical surfaces,lenses,thinlensformula,lensmaker's formula,magnification,powerofalens,combination ofthinlensesincontact,refractionoflighttrougha prism. Optical instruments: Microscopes and astronomicaltelescopes(reflectingandrefracting) andtheirmagnifyingpowers	**Experiment: 7&8** 7. Find the focal length of a convex lens by plotting u-v or 1/u -1/v graph 8. Find the focal length of a concave lens using convex lens – contact method (As per the availability of apparatus teachers can arrange other experiments from the list given by CBSE) **Activities: 5** Observe the diffraction of a single slit	**Term Test-1** **Assignment -4:** Based on optics

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
OCTOBER 2024	16	10 8 2	12	**Chapter–10: Wave optics:** Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only). **Unit VII: Dual Nature of Radiation and MatterDual Nature of Radiation and Matter** **Chapter–11: Dualnatureofradiation:** Photoelectriceffect,HertzandLenard'sobservations;Einstein'sphotoelectric equation-particle nature of light.Experimentalstudyof photoelectriceffect. Matterwaves-wavenatureofparticles,de-Broglierelation. **UnitVIII:AtomsAndNuclei** **Chapter–12: Atoms:** Alpha-particles catteringexperiment;Rutherford'smodelofatom;	**Activity:6** Observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab	

Month	No. of Days	No. of Periods	Weightage of Marks for the Unit/ Chapter	Units/Subunits/ Topics/Chapters to be Covered	Details of Activity/Practical/ Projects to be given	Unit Tests /Formative Tests/ Assignment
NOVEMBER 2024	**20**	**13** **10**	**07**	Bohrmodel ofhydrogenatom,Expressionforradiusofnth possibleorbit,velocityandenergyofelectroninthis orbit,ofhydrogenlinespectra(qualitativetreatment only). **Chapter–13:Nuclei:**Compositionandsizeofnucleus, nuclearforceMass-energyrelation,massdefect; bindingenergypernucleonanditsvariation withmass number;nuclearfission,nuclearfusion. **UnitIX:ElectronicDevices** **Chapter–14:SemiconductorElectronics: Materials,** **Devicesand Simple Circuits:** Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductordiode-I-V characteristicsinforward andreversebias, applicationofjunctiondiode–diode as a rectifier.	**Project work** : From the given list of CBSE Completion of left over practicals& Activities	
December 2024				**REVISION & PRE BOARD -1**	Completion of left over practicals	
January/ Feb 2025				**CBSE Practical and PRE BOARD -2**		
February-March 2025				**CBSE Examinations 2025**		

PRACTICALS

TotalPeriods6(

The record to be submitted by the students at the time of their annual examination has to include:

8. Record of at least 8 Experiments [with 4 from each section], to be performed by the students.
9. Record of at least 6 Activities [with 3 each from section A and section B], to beperformedbythestudents.
10. TheReportoftheprojectcarriedoutbythestudents.

EVALUATION SCHEME

MAX.MARKS: 30

Time3hours

Twoexperimentsonefromeachsection	7+7 Marks
Practicalrecord[experimentsandactivities]	5 Marks
Oneactivityfrom anysection	3 Marks
InvestigatoryProject	3 Marks
Vivaonexperiments,activitiesandproject	5 Marks
Total	30marks

SECTION–A

Experiments

a. To determine resistivity of two / three wires by plotting a graph forpotential differenceversus current.
b. Tofindresistanceofagivenwire/standardresistorusingmetrebridge.

c. Toverifythelawsofcombination(series)ofresistancesusingametrebridge.
   OR
   Toverifythelawsofcombination(parallel)ofresistancesusingametrebridge
   To determineresistance ofagalvano meterby half-deflectionmethodandto find its figureofmerit.
d. To convert the given galvanometer (of known resistance and figure of merit) into avoltmeterofdesiredrangeandtoverify thesame.
   OR
   To convert the given galvanometer (of known resistance and figure of merit) into an ammeterofdesiredrangeandtoverifythesame
e. TofindthefrequencyofACmainswithaSono meter.

Activities

11. Tomeasuretheresistanceandimpedanceofaninductorwithor withoutironcore.
12. To measure resistance, voltage (AC/DC), current (AC) and check continuity ofagiven circuitusingmulti meter.
13. To assemble a household circuit comprising three bulbs, three (on/off) switches, afuseandapowersource.
14. Toassemblethecomponentsofagivenelectricalcircuit.
15. Tostudythevariationinpotentialdropwithlengthofawireforasteadycurrent.
16. Todrawthediagramofagivenopencircuitcomprisingatleastabattery,resistor/rheostat, key, ammeter and voltmeter. Mark the components that are notconnectedinproperorder

andcorrectthecircuitandalsothecircuitdiagram.

SECTION-B

Experiments

17. To find the value of *v* for different values of *u* in case of a concave mirror and to findthefocal length.
18. Tofindthefocallengthofaconvexmirror,usingaconvexlens.
19. To find the focal length of a convex lens by plotting graphs between *u* and *v* orbetween*1/u*and*1/v*.
20. Tofindthefocallengthof aconcavelens,usingaconvexlens.
21. Todetermineangleofminimumdeviationforagivenprismbyplottingagraphbetweenangleofincidenceandangleofdeviation.
22. Todeterminerefractiveindexofaglassslabusingatravellingmicroscope.
23. Tofindtherefractiveindexofaliquidusingconvexlensandplanemirror.
24. Tofind therefractiveindexofaliquidusingaconcavemirror andaplanemirror.
25. TodrawtheI-Vcharacteristiccurveforap-njunctiondiodeinforwardandreversebias.

Activities

26. Toidentifyadiode,anLED,aresistorandacapacitorfromamixedcollectionofsuchitems.
27. Useofmulti metertoseetheunidirectionalflowofcurrentincaseofadiodeandanLEDandcheckwhetheragivenelectronic component(e.g.,diode)isinworkingorder.
28. Tostudyeffectofintensityoflight(byvaryingdistanceofthesource)onanLDR.
29. Toobserverefractionandlateraldeviationofabeamoflightincidentobliquelyonaglassslab.
30. Toobservediffractionoflightduetoathinslit.
31. To study the nature and size of the image formed by a (i) convex lens, or (ii) concavemirror, on a screen by using a candle and a screen (for different distances of thecandlefromthelens/mirror).
32. Toobtainalenscombinationwiththespecifiedfocallengthbyusingtwolensesfromthegivensetoflenses.

Suggested Investigatory Projects

1. Tostudyvariousfactorsonwhichtheinternalresistance/EMFofacelldepends.
2. To study the variations in current flowing in a circuit containing an LDR because ofavariationin
   a. thepoweroftheincandescentlamp,usedto'illuminate'theLDR(keepingall thelampsatafixeddistance).
   b. the distance of a incandescent lamp (of fixed power) used to 'illuminate'the LDR.
3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, anequi convex lens (made from a glass of known refractive index) and an adjustableobjectneedle.
4. Toinvestigatetherelationbetweentheratioof(i)outputandinputvoltageand(ii)numberofturnsintheseco ndarycoilandprimarycoilofaself-designedtransformer.
5. Toinvestigatethedependenceoftheangleofdeviationontheangleofincidenceusinga hollowprismfilled onebyone,withdifferenttransparentfluids.
6. Toestimatethechargeinducedoneachoneofthetwoidenticalstyrofoam(orpith)balls suspendedin averticalplanebymakinguseofCoulomb'slaw.
7. To study the factor on which the self-inductance of a coil depends by observing theeffectofthiscoil,whenputinserieswitharesistor/(bulb)inacircuitfedupbyanA.C.sourceofadjustable frequency.
8. To study the earth's magnetic field using a compass needle -barmagnetbyplotting

magneticfieldlinesandtangentgalvanometer.

Practical Examination for Visually Impaired Students of Classes XII Evaluation Scheme

Time2 hours Max.Marks:30

Identification/Familiaritywiththeapparatus	5marks
Writtentest(basedongiven/prescribedpracticals)	10marks
PracticalRecord	5marks
Viva	10marks
Total	30marks

General Guidelines

1. The practical examination will be of two-hour duration.
2. A separate list of ten experiments is included here.
3. The written examination in practical for these students will be conducted at the time of practical examination of all other students.
4. The written test will be of 30 minutes duration.
5. The question paper given to the students should be legibly typed. It should contain a total of 15 practical skill based very short answer type questions. A student would be required to answer any 10 questions.
6. A writer may be allowed to such students as per CBSE examination rules.
7. All questions included in the question papers should be related to the listed practical. Every question should require about two minutes to be answered.
8. These students are also required to maintain a practical file. A student is expected to record at least five of the listed experiments as per the specific instructions for each subject.
9. These practical should be duly checked and signed by the internal examiner.
10. The format of writing any experiment in the practical file should include aim, apparatus required, simple theory, procedure, related practical skills, precautions etc.
11. Questions may be generated jointly by the external/internal examiners and used for assessment.
12. The viva questions may include questions based on basic theory/principle/concept, apparatus/ materials/chemicals required, procedure, precautions, sources of error etc.

Class XII

A.Items for Identification/ familiarity with the apparatus for assessmentin practical(Allexperiments) Meterscale,generalshapeofthevoltmeter/ammeter,battery/powersupply,connecting wires, standard resistances, connecting wires, voltmeter/ammeter, meterbridge, screw gauge, jockey Galvanometer Resistance Box, standard Resistance,connecting wires, Potentiometer, jockey, Galvanometer, Lechlanche cell, Daniell cell[simpledistinctionbetweenthetwovis-à-vistheirouter(glassandcopper)containers],rheostat connecting wires, Galvanometer, resistance box, Plug-in and tapping keys,connecting wires battery/power supply, Diode, Resistor(Wire-wound or carbon oneswithtwowiresconnectedtotwoends),capacitors(one ortwotypes),Inductors,Simpleelectric/electronic bell, battery/power supply, Plug-in and tapping keys Convex lens,concave lens, convex mirror, concave mirror, Core/hollow wooden cylinder, insulatedwire ferromagnetic rod, Transformercore, insulatedwire.

List of Practicals

- To determine the resistance per cm of a given wire by plotting a graph betweenvoltageandcurrent.

- Toverifythelawsofcombination(series/parallelcombination)ofresistancesby Ohm'slaw.
- Tofindtheresistanceofagivenwire/standardresistorusingameterbridge.
- Todeterminetheresistanceofagalvanometerbyhalfdeflectionmethod.
- To identify a resistor, capacitor, inductor and diode from a mixed collection ofsuch items.
- Toobservethedifferencebetween
  - aconvexlensandaconcavelens
  - a convex mirror and a concave mirror and to estimate the likely differencebetweenthepoweroftwo givenconvex/concavelenses.
- Todesignaninductorcoilandtoknowtheeffectof
  - changeinthenumberofturns
  - Introduction of ferromagnetic material as its core material on the inductance ofthe coil.
- To design a (i) step up (ii) step down transformer on a given core and know therelationbetween itsinput andoutputvoltages.

Note: The above practicals may be carried out in an experiential manner rather than recordingobservations.

Prescribed Books:

1. Physics,ClassXI,Part-IandII,PublishedbyNCERT.
2. Physics,ClassXII,Part-IandII,PublishedbyNCERT.
3. LaboratoryManualofPhysicsforclassXIIPublishedbyNCERT.
4. The list of other related books and manuals brought out by NCERT(considermultimediaalso).

Note: The content indicated in NCERT textbooks as excluded for the year 2024-25 is not to be tested by schools and will not be assessed in the Board examinations 2024-25.

NAVODAYA VIDYALAYA SAMITI

CLASS: XII **SUBJECT: Chemistry** **SUBJECT CODE: 043**

Unit No	Name of The Chapter/ unit	Marks	Periods
1	Solutions	7	15
2	Electrochemistry	9	18
3	Chemical kinetics	7	15
4	d and f block elements	7	18
5	Coordination compounds	7	18
6	Haloalkanes and Haloarenes	6	15
7	Alcohols, Phenols and Ethers	6	14
8	Aldehydes, Ketones and Carboxylic acids	8	15
9	Amines	6	14
10	Biomolecules	7	18
	Total	70	160
	Practical Assessment	30	--
	Grand Total	100	--

PRACTICALS

Time Allowed: 03 Hours **Max.Marks:30**

Evaluation Scheme	**Marks**
I. Volumetric Analysis	08 Marks
II. Salt Analysis	08 Marks
III. Content based experiment	06 Marks
IV. Record + Viva	04 Marks
V. Project + Viva	04 Marks
Total	30 Marks

MONTH	NO OF DAYS	NO. OF PERIODS	Weightage of Marks for the Unit/ Chapter	Main Topic and Sub-Topics to be Covered	Activities/Projects/ Practical Experiments to be Held/ Specific Assessment Tool(s) (Suggested)	TESTS Periodic / Term /Pre-Board/ Revision/ Annual Exam
APRIL	26	15 18	**7** **9**	**Unit I:Solutions** 15 Periods Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor. **Unit II:Electrochemistry18 Periods** Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion.	1. Determination of concentration/ molarity of $KMnO_4$ solution by titrating it against a standard solution of: (a) Oxalic acid, (b) Ferrous Ammonium Sulphate (Students will be required to prepare standard solutions by weighing themselves). 2. Variation of cell potential in $Zn/Zn^{2+}//Cu^{2+}/Cu$ with change in concentration of electrolytes ($CuSO_4$ or $ZnSO_4$) at room temperature. 3. (a) Preparation of one lyophilic and one lyophobic sol Lyophilic sol - starch, egg albumin and gum Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.	**PWT 1 / UT 1** **(26-29 APRIL 2024)**

JULY	24	15 18	**7** **7**	**Unit III:Chemical Kinetics15 Periods** Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment), activation energy, Arrhenius equation. **Unit IV: d and f Block Elements** 18 Periods General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first-row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$. Lanthanoids – Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.	4 (a) Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid. (b) Study of reaction rates of any one of the following: (i) Reaction of Iodide ion with Hydrogen Peroxide at room temperature using different concentrations of Iodide ions. (ii) Reaction between Potassium Iodate, (KIO_3) and Sodium Sulphite: (Na_2SO_3) using starch solution as an indicator (clock reaction). 5. Qualitative analysis Determination of one anion and one cation in a given salt (03 salts per month or more) Cation: Pb^{2+}, Cu^{2+} As^{3+}, Al^{3+}, Fe^{3+}, Mn^{2+}, Zn^{2+}, Ni^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, NH_4^+ Anions: CO_3^{2-}, S^{2-}, SO_3^{2-} ,NO_2^{-1}, SO_4^{2-} , Cl^{-1} , Br^{-1} , I^{-1} , PO_4^{3-} , $C_2O_4^{2-}$, CH_3COO^{-1} , NO_3^{-1} (Note: Insoluble salts excluded)	

AUGUST	27	18 15	07 06	**Unit V: Coordination Compounds** 18 Periods Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, the importance of coordination compounds (in qualitative analysis, extraction of metals and biological system). **Unit VI: Haloalkanes and Haloarenes.** 15 Periods **Haloalkanes:** Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation mechanism of substitution reactions. **Haloarenes:** Nature of C–X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.	6. Preparation of Inorganic Compounds Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. Preparation of Potassium Ferric Oxalate. 7. Tests for the functional groups present in organic compounds: Unsaturation, alcoholic, phenolic, aldehydic, ketonic, groups.	**PWT 2 / UT 2 (8-10 AUGUST 2024)**

SEPTEMBER	24	14 15	**06** **08**	**Unit VII: Alcohols, Phenols and Ethers** 14 Periods **Alcohols:** Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol. **Phenols:** Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. **Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses. **Unit VIII: Aldehydes, Ketones and Carboxylic Acids** 15 Periods **Aldehydes and Ketones:** Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, Uses. **Carboxylic Acids:** Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.	8. Tests for the functional groups present in organic compounds: Carboxylic and amino (Primary) groups. 9. Chromatography (a) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values. (b) Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in Rf values to be provided).	**Revision & Exams- Term I 23 Sep- 04 0ct 2024**
OCTOBER	21	14	**06**	**Unit IX: Amines** 14 Periods **Amines:** Nomenclature, classification, structure, methods of preparation, physical properties and Identification. **Diazonium salts:** Preparation, chemical reactions and importance in synthetic organic chemistry.	10. Any one of the following experiments: (a) Enthalpy of dissolution of copper sulphate or potassium nitrate. (b) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH). (c) Determination of enthalpy change during interaction (Hydrogen bond formation) between acetone and chloroform.	

NOVEMBER	15	18	**7**	**Unit X: Biomolecules Carbohydrates** 18 Periods Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. Vitamins - Classification and functions. Nucleic Acids: DNA and RNA.	11. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given foodstuffs.	
DECEMBER	24			**REVISION & EXAMS**	**Investigatory Project**	**Pre-Board-I 04-14 Dec 2024**
JAN	31	--		**REVISION & EXAMS**	**----------**	**Pre-Board II 20-30 Jan 2025**
FEB	28	--		**REVISION & Annual Examinations**	----------	
FEB & MARCH	31			**Annual Examinations**		

Art integrated learning must be invariably adopted for clarifying scientific concepts.

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NAVODAYA VIDYALAYA SAMITI

CLASS: XII (SCI) **SUBJECT: BIOLOGY** **SUBJECT CODE: 044**

The present curriculum provides the students with updated concepts along with an extended exposure to contemporary areas of the subject. The curriculum also aims at emphasizing the underlying principles that are common to animals, plants and microorganisms as well as highlighting the relationship of Biology with other areas of knowledge. The format allows a simple, clear, sequential flow of concepts. It relates the study of biology to real life through the developments in use of technology. It links the discoveries and innovations in biology to everyday life such as environment, industry, health and agriculture. The updated curriculum also focuses on understanding and application of scientific principles, while ensuring that ample opportunities and scope for learning and appreciating basic concepts continue to be available within its framework. The prescribed syllabus is expected to:

- Promote understanding of basic principles of Biology
- Encourage learning of emerging knowledge and its relevance to individual and society
- Promote rational/scientific attitude towards issues related to population, environment and development.
- Enhance awareness about environmental issues, problems and their appropriate solutions.
- Create awareness amongst the learners about diversity in the living organisms and developing respect for other living beings.
- Appreciate that the most complex biological phenomena are built on essentially simple processes.

It is expected that the students would get an exposure to various branches of Biology in the curriculum in a more contextual and systematic manner as they study its various units.

COURSESTRUCTURECLASS XII(2024-25)(THEORY)

Time:3 Hours **Max.Marks:70**

Unit No	Title	No.ofPeriods	Marks
VI	Reproduction	30	**16**
VII	GeneticsandEvolution	40	**20**
VIII	BiologyandHumanWelfare	30	**12**
IX	BiotechnologyanditsApplications	30	**12**
X	EcologyandEnvironment	30	**10**

		Total	**160**	**70**

MONTH	NOOF DAYS	NOOF PERIODS	Main Topic and Sub-Topics to beCovered	Activities/Projects/ PracticalExperimentstobe Held
April-2024	**21**	**21+9 =30**	**UnitVI-Reproduction: SexualReproductioninFlowering Plants** Sexualreproduction in flowering plantFlower structure; Development ofmale and female gametophytes;Pollination - types, agencies andexamples; out breeding devices;pollen-pistil interaction; Doublefertilization;postfertilization events-Developmentofendospermand embryo, development of seedand formation of fruit; specialmodes-apomixis, parthenocarpy,polyembryony;Significanceofseeddispersalandfruitformation. **HumanReproduction:** Male and female reproductivesystems; microscopic anatomy oftestis and ovary; gametogenesisspermatogenesis and oogenesis;menstrual cycle; fertilisation,embryodevelopment uptoblastocystformation,implantation;pregnancy and placenta formation(elementary idea); parturition(elementary idea); lactation(elementaryidea). **Reproductivehealth:** Need for reproductive health andpreventionofSexuallyTransmittedDiseases (STDs); birth control - need and methods, contraceptionandmedical terminationofpregnancy (MTP);	**Experiments:** 1.Study of pollen germination on acavityslide **Spotting:** 1. Studyofflowersadaptedtop ollination 2. ExerciseonControlledpollination 3. Pollen germination on stigmathroughapermanentslideorscanningelectron micrograph. Olabs video(https://youtu.be/4wx3d02eib4) 4. Studyandidentifystagesofgametedevelopment i.e. T.S. of testis, T.S. ofovarythroughpermanentslides.Olabs simulationhttps://bit.ly/3YUWOaU 5. Studyofmeiosisthroughpermanentslides 6. Study of blastula throughpermanentslideOlabssimulation https://bit.ly/3S04eaBMay

			amniocentesis;infertility and assisted reproductivetechnologies - IVF, ZIFT, GIFT(elementary idea for generalawareness).	
			UT 1	
JULY-2024	**25**	**25+ 12= 37**	**Unit VII-Genetics and EvolutionHeredity and variation**:Mendelian inheritance; deviationsfrom Mendelism – incompletedominance,co-dominance. multipleallelesandinheritanceofblood groups,pleiotropy;elementaryideaofpolygenicinheritance; chromosome theory ofinheritance;chromosomesandgenes;Sexdetermination-inhumans,birdsandhoneybee;linkageandcrossingover;sexlinkedinheritance-haemophilia,colourblindness;Mendeliandisorders in humans - thalassemia;chromosomal disorders in humans;Down'ssyndrome,Turner'sand Haemophilia,colourblindness,Mendelian disorders in humans-thalassemia,chromosomal disorders in humans, Down's syndrome, Turner's syndrome and Klinefelter'ssyndromes.	**Experiments:** 2.Prepareatemporarymountofonionroot tip to study mitosis. Olabs video https://youtu.be/N- **Spotting**: 7.StudyofMendelianinheritance using seeds of different colours of any plant Olabs simulation https://bit.ly/3S4laMX 8. Study of prepared pedigree charts.Olabs ZZsimulationhttps://bit.ly/3k5bKV1

			MolecularbasisofInheritance SearchforgeneticmaterialandDNA as genetic material; StructureofDNAandRNA;DNApackaging;DNAreplication;CentralDogma;transcription,geneticcode,translation;geneexpressionandregulation-lacoperon;Genome,Humanandricegenome projects; DNAfingerprinting.	
August - 2024	**25**	**25+12=37**	**UT-2**	
			Evolution origin of life; biologicalevolutionandevidencesforbiologicalevolution (palaeontology,comparativeanatomy,embryologyand molecular evidence); Darwin'scontribution,modernsynthetictheory of evolution; mechanism ofevolution - variation (mutation andrecombination)andnaturalselectionwithexamples,typesofnaturalselection;Geneflowandgeneticdrift; Hardy-Weinberg'sprinciple;adaptiveradiation; human evolution **Unit VIII - Biology and Human welfare Health and disease** **Pathogens** parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse. **Microbesinhumanwelfare** Microbesinfoodprocessing,industrialproduction,sewagetreatment,energygenerationandmicrobes as bio-control agents andbio-fertilizers. Antibiotics;	**Spotting:** Common disease-**causing** organismslike ***Ascaris, Entamoeba, Plasmodium,any fungus causing ringworm*** throughpermanent slides, models or virtualimages or specimens. Comment onsymptomsofdiseasesthattheycause. **Experiments:** 3.IsolateDNAfromavailableplantmaterialsuchasspinach,greenpeaseeds,papaya, etc.

			productionand judicioususe.	
September-2024	**18**	**18+7=25**	**UnitIX-Biotechnologyanditsapplications** **Biotechnology - Principles andProcesses.** GeneticEngineering(RecombinantDNATechnology). **Biotechnology and itsApplications** Applicationofbiotechnologyinhealthandagriculture:Humaninsulinandvaccineproduction,stem cell technology, gene therapy;geneticallymodifiedorganisms-Btcrops;transgenicanimals;biosafety issues,biopiracyandpatents.	
			MID TERMEXAMINATIONS	
October-2024	**22**	**22+9=31**	**UnitX-EcologyandEnvironment** OrganismsandenvironmentPopulationinteractions-mutualism, competition, predation,parasitism;populationattributes-growth,birthrateanddeathrate, age distribution. (Topics excluded:Organism and its Environment, MajorAbioticFactors,ResponsestoAbiotic Factors,Adaptations). **Ecosystem**: Ecosystems: Patterns, components;productivityanddecomposition;energy flow; pyramids of number,biomass, energy (Topics excluded:Ecological Succession and NutrientCycles)	**Experiments:** 4. Studyofplantpopulationdensitybyquadratemethod.Olabsvideohttps://youtu.be/FlwR-EGE9zA Studyofplantpopulationfrequencyby quadrate method. Olabsvideohttps://youtu.be/uBYqBNyojMQ **Spotting:** 11.Models specimenshowingsymbolicassociation inrootmodules of leguminous plants,Cuscutaon host, lichens.
			InvestigatoryProject	

November-2024		**20**	**BiodiversityanditsConservation** Biodiversity-Concept, patterns,importance; loss of biodiversity;biodiversity conservation; hotspots,endangeredorganisms,extinction,RedData Book, Sacred Groves, biosphererereserves, national parks, wildlife,sanctuaries and Ramsarsites. **RevisionofDifficultTopicsPreparationforPre-Board Examination-I**	**Submission** 1.Record 2.InvestigatoryProject
			REVISIONANDPREPARATIONOFCBSEEXAM	

XIIBIOLOGYPRACTICALS

A. ListofExperiments

1. Prepareatemporarymount toobservepollengermination.
2. Studytheplantpopulation densityby quadratmethod.
3. Studytheplantpopulation frequencyby quadratmethod.
4. Prepareatemporary mountof onion root tip to study mitosis.
5. IsolateDNA fromavailableplantmaterialsuch asspinach,greenpeaseeds,papaya,etc.

B. Studyandobserverthefollowing(Spotting)

1. Flowers adaptedto pollinationby differentagencies (wind,insects, birds).
2. Pollengerminationonstigmathroughapermanentslide orscanningelectronmicrograph.
3. Identificationofstagesofgametedevelopment,i.e.,T.S.oftestisandT.S.ofovarythroughpermanentslides (from grasshopper/mice).
4. Meiosisinonionbud cellorgrasshoppertestis throughpermanentslides.
5. T.S.ofblastulathroughpermanentslides(Mammalian).
6. Mendelianinheritance usingseedsofdifferentcolour/sizesofanyplant.
7. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, bloodgroups,ear lobes, widow's peak andcolour blindness.
8. Controlledpollination-emasculation,tagging andbagging.

9.Common disease-causing organisms like Ascaris, Entamoeba, Plasmodium, any funguscausingringwormthroughpermanentslides,modelsorvirtualimagesorspecimens.Commenton symptomsof diseases that they cause.

PRACTICALS

Timeallowed: 3Hours **Max.Marks:30**

EvaluationScheme	Marks
OneMajorExperiment 5	05
OneMinorExperiment2 &3	04
SlidePreparation1&4	05
Spotting	07
PracticalRecord+VivaVoce	04
Investigatory Project and its Project Record + Viva VoceCredit (to the students' work over the academic session maybegiven)	05
Total	30

Question Paper Design (Theory)

2023-24ClassXII Biology (044)

Competencies

DemonstrateKnowledgeand Understanding	50%
ApplicationofKnowledge/Concepts	30%
Analyse,EvaluateandCreate	20%

Note:

s) Typologyofquestions:VSAincludingMCQs,Assertion–Reasoningtypequestions;SA;LAI;LA-II;Source-based/Case-based/Passage-based/Integratedassessmentquestions.

t) An internal choiceof approximately 33%would beprovided.

Suggestiveverbsforvariouscompetencies

- Demonstrate,KnowledgeandUnderstanding
  -State,name,list,identify,define,suggest,describe,outline,summarize,etc.

- ApplicationofKnowledge/Concepts
  -Calculate,illustrate,show,adapt, explain,distinguish,etc.
- Analyze,EvaluateandCreate
  -Interpret,analyse,compare,contrast,examine, evaluate,discuss,construct,etc.

OnlineResourcesforTheoryandPracticals

h) VirtualLabshttps://diksha.gov.in/virtuallabs.html)
i) Olabs-https://www.olabs.edu.in/
j) VirtualFlylabhttps://www.sciencecourseware.org/FlyLabJS/
k) BiologyInteractiveresourceshttps://www.biointeractive.org/classroom-resources
l) OnlineMacromolecularMuseumhttps://bit.ly/3YAQ1U0
m) SumanasMultimediaAnimationshttps://bit.ly/3I1XRPj
n) GeneticScienceLearningCenterhttps://learn.genetics.utah.edu/content/labs/
o) DNAInteractivehttp://www.dnai.org/
p) DNAfromthebeginninghttp://www.dnaftb.org/
q) InsideCancerhttp://www.insidecancer.org/
r) YourGenesYourHealthhttp://www.ygyh.org
s) BiologyAnimationshttps://dnalc.cshl.edu/resources/animations/
t) Biology-Livehttp://www.bio-alive.com/animations/biology.htm
u) VirtualCellAnimationshttps://vcell.science/
v) LearnGeneticshttps://learn.genetics.utah.edu/
w) Untamedsciencehttps://untamedscience.com/science-videos-list/
x) Pearsonhttps://untamedscience.com/pearson/
y) Biology https://www.pearson.com/channels/biology

NAVODAYA VIDYALAYA SAMITI,

CLASS: XII SUBJECT: HISTORY SUBJECT CODE: 027

Unit No	Name of The Chapter/ unit	Marks	Periods
01	1Bricks,BeadsandBones	25	15
	2Kings,FarmersandTowns		17
	3Kinship,CasteandClass		17
	4Thinkers,BeliefsandBuildings		12
02	5ThroughtheEyesofTravelers	25	12
	6Bhakti–SufiTraditions		15
	7AnImperialCapital:Vijayanagar		17
	8Peasants,ZamindarsandtheState		17
03	9ColonialismandTheCountryside	25	14
	10RebelsandtheRaj		14
04	11 Mahatma Gandhi and the NationalistMovement		15
	12FramingtheConstitution		15
	MAPWORK	5	15
	TOTAL	80	195
	INTERNALASSESSMENT/PROJECTWORK	20	25
	GRANDTOTAL	100	220

MONTH	NO OF DAYS	NO OF PERIODS	Main Topic and Sub-Topics to be Covered	Activities/Projects/ Practical Experiments to be Held Specific Assessment Tool(s) (Suggested)
APRIL2024	22	38	**Bricks,BeadsandBones**– The Harappan civilization 1. Beginnings. 2. SubsistenceStrategies 3. Mohenjo-DaroaplannedUrbanCentre 4.TrackingSocialDifferences 5. FindingoutaboutCraftProduction 6.Strategiesfor Procuring Materials 7.Seals, Scripts, Weight. 8. AncientAuthority 9.TheEndof the Civilization 10. Discovering the Harappan Civilization 11.Problems ofpiecingtogether the Past	- Map practice of harappansites Harappan,Banawali,Kalibang Balakot,Rakhigarhi,Dholavira geshwar,Lothal,Mohenjodaro anh-udaro,Kotdiji - Quiz based on the knowledge oftopics. Historicaltrip,project guideli allotmentof final topic for proje work.

			Kings,FarmersandTowns– EarlystatesandEconomics(C.600BCE -600CE) 1.Prinsep and Piyadas' 2.TheEarliestStates 3.AnEarlyEmpire 4.NewNotions of Kingship 5.A changingCountryside 6. Towns and Trade 7. Back to basics: How are Inscriptions deciphered?	- Map practice of early st and their capitals, quiz-and kingdom and to (mahajanpadas Vajji,Magadha, Kosala,K Pachala, Gandhara,Av Rajgir,Ujjain,Taxila,Varana - Visit to near by histo museum Map practice of mahajanp quiz on subtopics
PWT/UT-1 26-29 April 2024				
JULY. 2024	**26**	**44**	**Kinship, Caste and Class-** EarlySocieties(C.600BCE -600CE) 1. The critical edition of the Mahabharata 2. Kinshipandmarriage: Manyrulesand varied practices 3.Social differences: Within and beyond the frameworkofCaste 4.BeyondbirthResources and Status 5.Explaining social differences: A Social Contract 6.Handing Texts, Historians and theMahabharata 7.ADynamicText	Performing of play based on the story Mahabharata
			Thinkers,Beliefs andBuildings Cultural Developments (C. 600 BCE - 600 CE) 1. A glimpse of Sanchi. 2. The background:SacrificesandDebates 3. Beyondworldlypleasure, The messageofMahavira 4.The Buddha and the questforEnlightenment 5. Theteachingsofthe Buddha 6.Followers of the Buddha 7. Stupas 8.''Discovering"Stupas, ThefaithofAmaravatiandSanchi 9.Sculpture 10.New Religious Traditions 11. Canwe"SEE" everything?	Map practice of buddhist sites Visit of near bybuddhistandpuran sites Planninganddatacollectionforproje work. Quiz based on buddism, jainismand puranicHinduism

			Through the Eyes of Travelers PerceptionsofSociety(C.Tenthto seventeenthcentury) 1.Al-BiruniandtheKitab-Ul Hind xiii) IbnBattuta'sRahal xiv) FrancoisBernier, ADoctorwitha difference Making sense of an alien world, Al-BiruniandtheSanskrittradition Ibn Battuta and the excitement of the unfamiliarBernier and the "Degenerate East" Women, Slaves, Satiand Laboure's	Mappracticeofsites visited by Ibn Ba Quizon subtopics Conduct a group discussion on theacc of medieval foreign Travellers
AUG 2024	**22**	**38**	**Bhakti–SufiTraditions**ChangesinReligiousbeliefs anddevotionaltests Eight to Eighteenth century) 1.A Mosaic of Religious beliefs andpractices 2.PoemsofPrayers: Earlytraditions ofBhakti 3.TheVira Shaivatradition in Karnataka 4.ReligiousfermentinNorth India 5.NewStrandsinthe fabricIslamictraditions 6. TheGrowthofSufism 7. TheChishti'sin theSubcontinent 8.Newdevotionalpathsdialogueanddissent NorthernIndia 9. ReconstructingHistoriesofreligious traditions	Map practice of temples and sufi shrines Quiz Visit of nearby temples anddargahasofsufi's

			AnImperialCapital:Vijayanagar(C. Fourteenth to Sixteenth Century) 1. ThediscoveryofHampi. 2. Rayas, NayakasandSultans 3. VijayanagaraTheCapitalanditsEnvirons 4.TheRoyal Centre 5.TheSacredCentre 6. Plotting Palaces, Templesand Bazaars 7.Qestionsinsearchofanswers	Map practice,quiz, Observation of variousculturalactivitesduring autumnseason
			Peasants, ZamindarsandtheState AgrarianSocietyandtheMughalEmpire(C.Sixteenth–Seventeenth Centuries) 1. Peasantsandagriculturalproduction 2.Thevillagecommunity 3. Womeninagrarianso city 4.ForestsandTribes 5.The Zamindars 6.Landrevenuesystem 7.Theflowofsilver 8.TheAin-I-Akbariof AbulFazeal	Map practice of the areas ofmughalen Quiz A survayofnearest villageandtribalare
PWT/UT-II (08/8/2024 TO 10/8/2024)				
SEP 2024	**17**	**32**	**Colonialism and The Countryside**ExploringOfficialArchives 1.Bengal and the Zamindars 2.TheHoeandPlough 3.ARevoltinCountryside: The Bombay Deccan 4.TheDeccanriots Commission	Mappractice, Quiz Collections anddiscussionofofficial reports
			Rebels and the Rajthe Revoltof1857andItsRepresentations 1. Pattern of the Rebellion 2. AwadhinRevolt 3.WhattheRebelswanted 4. Repression 5.ImagesoftheRevolt **Mid Term Examination (23/09/2024 TO 04/10/2024)**	Practice the map majorcentresofbritishpower Quiz Skit onfreedomstruggle

Oct. 2024	**18**	**32**	**MahatmaGandhiandtheNationalistMovement** CivilDisobedienceandBeyond 1.ALeaderannouncesHimself 2.ThemakingandunmakingofNon-cooperation. 3.TheSaltSatyagraha: ACaseStudy 4.QuitIndia 5.ThelastHeroicdays 6.Knowing Gandhi	- Mappracticeofmajorsites of Gandhian Movement - Skit on dandi satyagraha
NOV. 2024	**20**	**36**	**Framingthe Constitution** The BeginningofaNewEra 1.ATumultuoustime 2.ThevisionoftheConstitution 3. Defining Rights 4.ThePower of States 5. The Language ofthe nation.	Quiz on indian constitution Mock parliament Data analysis and interpretation for project work MAPWORK
DECEMBER	INTERNAL ASSESSMENT/ PROJECT WORK REVISION **1st PRE – BOARD** **04.12.2024 to 14.12.2024**			
DECEMBER 2024/ JANUARY2025 REVISION **2nd PRE – BOARD (20.01.2025 to 30.01.2025)** **Annual Exam (15 Feb. 2025 onwards As per CBSE Schedule)**				

NAVODAYA VIDYALAYA SAMITI

CLASS: XII SUBJECT: GEOGRAPHY SUB.CODE: 029

Sl. No.	NAME OF THE TEXTBOOKS/ UNITS/CHAPTERS	ALLOTTED MARKS	NUMBER OF PERIODS
1	Fundamentals of Human Geography	30	85
2	India- People and Economy	30	85
3	Practical Work in Geography – Part II	25+3+2= 30	40
4	Map Work from Fundamentals of Human Geography	5	5
5	Map work from India - People and Economy	5	5
	Total	100 Marks	220

Month	No. of days	No. of Periods	Main topic and subtopics to be covered	Activities/ projects practical
APRIL 2024	22 Days	38 Periods	**Fundamentals of Human Geography** **Unit I** • Human Geography Nature and Scope • The World Population: Distribution, Density and Growth **India: People and Economy** **Unit I** • Population: Distribution, Density, Growth, and Composition **Fundamentals of Human Geography** **Unit II & III** • Human Development	Activity: Debate & Discussion or Naturalization of Humans and Humanization of Nature.
			PWT/UT-1 (26/04/2024 TO 29/04/2024)	

JULY 2024	26 Days	44 Periods	**Fundamentals of Human Geography** **Unit II & III** • Primary Activities **India: People and Economy** **Unit I** • Human Settlement **Fundamentals of Human Geography** **Unit III** • Secondary activities **India: People and Economy** **Unit III** • Land Resources and Agriculture	Practical Work in Geography II Data – Its Source and Compilation
AUGUST 2024 2	22 Days	38 Periods	**India: People and Economy** **Unit III** • Water Resources • Minerals and Energy Resources **Fundamentals of Human Geography** **Unit III** • Tertiary and Quaternary Activities	Practical Work in Geography - II Data Processing
			PWT/UT-II (08/8/2024 TO 10/8/2024)	
SEPTEMBER 2024	17 Days	32 Periods	**India: People and Economy** **Unit III** • Planning and Sustainable Development in Indian Context **Unit IV** • Transport and communication **Fundamentals of Human Geography** **Unit III** • Transport and Communication & Trade	Practical Work in Geography – II Graphical Representation Of Data
Mid Term Examination (23/09/2024 TO 04/10/2024)				

OCTOBER 2024	18 Days	32 Periods	**Fundamentals of Human Geography** **Unit III** • International Trade **India: People and Economy** **Unit IV** • International Trade **Unit V** • Geographical Perspective On Selected Issues and Problems	Practical Work in Geography – II Spatial Information Technology
NOVEMBER 2024	20	36	**India: People and Economy** **Unit V** • Geographical Perspective On Selected Issues and Problems 1. Map Work on identification of features based on 1-5 units on the outline Physical/Political map of World. 2. Map work on locating and labeling of features based on above units on outline map of India.	
DECEMBER 2024	INTERNAL ASSESSMENT/ PROJECT WORK REVISION **1st PRE – BOARD** **04.12.2024 to 14.12.2024**			
DECEMBER 2024/ JANUARY2025 REVISION **2nd PRE – BOARD (20.01.2025 to 30.01.2025)**				

SUGGESTEDCLASS ROOM ACTIVITIES: -

- GROUP DISCUSSION OR DEBATE
- MAP PRACTICE
- GRAPH AND DATA INTERPRETATION
- FOCUS ON LOCAL AREA RESOURCES & ENVIRONMENT
- OTHER RELEVENT ACTIVITIES

Note*: Any changes in the syllabus, if announced by CBSE during the academic year 2024-25, have to be incorporated into the split-up syllabus by the concerned teachers and Principal accordingly. In this regard, Principals and teachers will always remain in touch with CBSE and its website. Art integrated activities must be integrated with the teaching-learning process.*

Number of periods mentioned here against each month is insufficient to complete the whole syllabus within the stipulated time. Extra classes are necessary.

NAVODAYAVIDYALAYASAMITI

CLASS12

CLASS:12 SUBJECT:ECONOMICS SUBJECTCODE:030

Units		Marks	Periods (As per CBSE)
PartA	**IntroductoryMacroeconomics**		
	NationalIncomeandRelatedAggregates	10	30
	MoneyandBanking	06	15
	DeterminationofIncomeandEmployment	12	30
	GovernmentBudgetandtheEconomy	06	17
	BalanceofPayments	06	18
		40	
PartB	**IndianEconomicDevelopment**		
	Development Experience (1947-90) and Economic Reforms since 1991	12	28
	CurrentChallengesfacingIndianEconomy	20	50
	Development Experience of India – A Comparison with Neighbors	08	12
		40	
	TheoryPaper(Total)	80	**200**
PartC	**Project Work**	20	20
	GrandTotal	**100**	220

Month	No.ofdays	No.ofPeriods	MainTopicandSubtopicstobecovered	Activities/Projects/ Practical/ Experiments to be held/Specific AssessmentTool(s) suggested.
APRIL2024	22	36	**Unit1:NationalIncomeandRelatedAggregates:** What is Macroeconomics? Basic concepts in macroeconomics: Consumption goods, Capital goods,final goods, intermediate goods, stocks and flows, gross investmentand depreciation. Circular flow of income (two sector model), Methods of calculating National Income- Value Added or Product method, Expenditure method, Income method. Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP)-at market price, atfactor cost, Real and Nominal GDP. GDPandWelfare. **Unit2:MoneyandBanking** Money- meaning and functions, supply of money-Currencyheldbythe public and netdemand deposits held by commercial banks. **UT-IEXAMINATION26TO29APRIL,2024** ***Syllabus:-Unit1***	**Quiz,mindmap, PPT presentation.** **Selectionoftopic for project work**
JULY2024	26	39	**Unit2:MoneyandBanking** Money creation by thecommercial banking system. Central bankand itsfunctions (example of theReserveBankofIndia):Bankofissue,Govt.Bank,Banker's Bank, Control ofCredit through Bank Rate,CRR, SLR, RepoRateandReverseRepoRate,OpenMarketOperations, Margin requirement. **Unit3:DeterminationofIncomeandEmployment** Aggregatedemandanditscomponents Propensity to consume andPropensity to Save (averageand marginal). Short-run equilibriumoutput, investmentmultiplier and its mechanism. Meaning of full employment and involuntary unemployment. Problemsofexcessdemandanddeficientdemand,measur	**Competitive basedquestion** **Case study on impact andeffect of Repo rate change** **Collection of material relatesto project andreview ofliterature**

			es to correct them-changes in government spending,taxesandmoneysupply.	
AUGUST2024	22	35	**Unit 4: Government Budget and the Economy** Government budget- meaning, objectives andcomponents. Classification of receipts-revenue receipts and capital receipts. Classification of expenditure-revenue expenditure and capital expenditure. Balanced,SurplusandDeficitBudget-measuresof government deficit. **Unit5:BalanceOfPayments** Balance of paymentsaccount-meaning andcomponents. Balance OfPayments-Surplus and Deficit Foreignexchangerate- meaningoffixedand flexiblerates and managed floating. Determination of exchangerate in a free market, Merits, anddemeritsofflexibleand fixedexchangerate.Managed Floating exchangerate system. **UT-IIEXAMINATION08TO10AUGUST,2024**	**Debate Value based questions. Case study and Assertionquestion relates todeficit budget. Collection of dataforproject work**
			SyllabusforUT-IIExam:-Unit2and3	
SEPTEMBER2024	17	28	**Unit6:Development Experience(1947-90)andEconomicReformssince 1991:** A briefintroduction ofthestate ofIndian economyonthe eve of independence. Indian economic system andcommon goals of Five-Year Plans. Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy), industry(IPR 1956,SSI-roleandimportance)and foreign trade. **RevisionforTerm1Examination** **TERM1EXAM23Septemberto04October,2024** ***Syllabus for TERM - I Exam: - Units 1 to 6 the syllabus completed till the date***	Analysisofproject data Debate, quiz Application oriented questions
OCTOBE			**Unit7:CurrentChallengesfacingIndianEconomy** **Human Capital Formation:** How people become	**Findings, policy**

	18	30	resource, Role of human capital in economicdevelopment, Growth ofEducation Sector in India. **Rural development:** Key issues- credit and marketing- role of cooperatives, agricultural diversification,alternativefarming- Organic farming **Employment:** Growth and changes in work force participationrateinformalandinformalsectors, problems and policies.	**recommendation andconclusionof project work** **Case study competitive basedquestion MCQ**
NOVEMBER2024	20	32	**Sustainable Economic Development:** Meaning, Effects of Economic Development on Resources andEnvironment, includingglobal warming. **Unit 8: Development Experience of India:** Acomparison with neighborsIndia and Pakistan India and China Issues: economic growth, population, sectoraldevelopment and other Human Development Indicators.	**Case study competitive basedquestion MCQ Art integrated techniques**
DECEMBER 2024	12	20	**PREPARATIONOFPROJECTWORK** **&** **RevisionforPre-Board–IExam** **PRE-BOARD–IEXAM04TO14DEC.2024** **RevisionforPre-Board–IIExam**	Practiceof Sample Papers, Practice Tests
JANUARY 2025	14		**RevisionforPre-Board–IIExam** **PRE-BOARD–IIEXAM20TO30JAN.2025**	Practiceof Sample Papers, Practice Tests
FEBRUARY2025	22		**PRACTICALEXAMINATIONOFCBSE** **And** **RevisionforAnnualExamination** **ANNUALEXAMINATION15FEB.2025ONWARDS**	Practice of SamplePapers, Practice Tests

SUGGESTEDQUESTIONPAPERPATTERNBYCBSE
Economics(CodeNo.030)
ClassXII(2024-25)Theory:80Marks3hrs. Project:20Marks

SN	**TypologyofQuestions**	Marks	Percentage

1	**Remembering and Understanding:** Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and statingmain ideas	44	55%
2	**Applying:** Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	18	22.5%
3	**Analyzing, Evaluating and Creating:**Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Compileinformation togetherin adifferent way by combining elements in a new pattern or proposing alternative solutions.	18	22.5%
	Total	80	100%

NAVODAYA VIDYALAYA SAMITI

CLASS XII (2024-25) **SUBJECT: ACCOUNTANCY (055)**
Theory: 80 Marks **Time: 3 Hrs.**
Project: 20 Marks

Part A: Accounting for Partnership Firms and Companies (60Marks)			
Units	**Name of the Chapter/ Unit**	**Marks**	**Periods**
Unit-1	Accounting for Partnership Firms	36	105
Unit 2.	Accounting for Companies	24	45
	Total	**60**	**150**
Part B: Financial Statement Analysis (20Marks)			
Unit 3.	Analysis of Financial Statements	12	30
Unit 4.	Cash Flow Statement	8	20
	Total	**20**	**50**
Part-C: Project Work (20Marks)			
	Project File	12	
	Viva Voce	08	
	Total	**20**	**20**
	Grand Total (A +B+C)	**100**	**220**

PART A: ACCOUNTING FOR PARTNERSHIP FIRMS AND COMPANIES

Month	No. of Days	No. of Periods	Main Topic and Subtopics to be covered	Activities/Projects/ Practical/ Experiments to be held/Specific Assessment Tools suggested
APRIL 2024	22	38	**Unit 1: Accounting for Partnership Firms:** • Partnership: features, Partnership Deed, Provisions of the Indian Partnership Act 1932 in the absence of partnership deed.Fixed v/s fluctuating capital accounts. Preparation of Profit and Loss Appropriation account- division of profit among partners, guarantee of profits, - Past adjustments (relating to interest on capital, interest on drawing, salary and profit-sharing ratio). • Goodwill: Meaning, nature, factors affecting, need for valuation and methods for calculation - average profit, super profit and capitalization, adjusted through partner's capital/current account. **Unit-2 Accounting for Partnership Firms Reconstitution:-** **-Change in profit sharing ratio among the existing partners** - sacrificing ratio, gaining ratio, accounting for revaluation of assets and reassessment of liabilities and treatment of reserves, accumulated profits and losses. Preparation of revaluation account and Balance Sheet. **Admission of a partner** - Effect of admission of a partner on change in the profit-sharing ratio, treatment of goodwill (as per AS 26), **UT – I EXAMINATION 26 TO 29 APRIL, 2024** ***Syllabus for UT – I: Partnership: Fundamentals, Change in Profit Sharing Ratio***	Role Play ofstudents regarding formation of partnership and their agreement based on previous knowledge
JULY 2024	26	42	**Admission of a partner** - Treatment for revaluation of assets and reassessment of liabilities, treatment of reserves, accumulated profits and losses, adjustment of capital accounts and preparation of capital, current account and Balance Sheet	Different assignments can be given to the students to understand the topic through role play method, Quiz, Class Tests

			Retirement and Death of a Partner: effect of retirement/death of a partner on change in profit sharing ratio, treatment of goodwill (as per AS 26), treatment for revaluation of assets and reassessment of liabilities, adjustment of accumulated profits, losses and reserves, adjustment of capital accounts and preparation of capital, current account and balance sheet. Preparation of loan account of the retiring partner. • Calculation of deceased partner's share of profit till the date of death. Preparation of deceased partner's capital account and his executor's account.	
AUGUST 2024	22	40	**Dissolution of a Partnership firm**: meaning of dissolution of partnership and partnership firm, types of dissolution of a firm. Settlement ofaccounts - preparation of realization account, and other related accounts: capital accounts of partners and cash/bank a/c (excluding piecemeal distribution, sale to a company and insolvency of partner(s)). **Note:** (i) If the realized value of tangible assets is not given it should be considered as realized at book value itself. (ii) If the realized value of intangible assets is not given it should be considered as nil (zero value). (iii) In case, the realization expenses are borne by a partner, clear indication should be given regarding the payment thereof. **Unit-3 Accounting for Companies** **Accounting for Share Capital** • Features and types of companies • Share and share capital: nature and types. • Accounting for share capital: issue and allotment of equity and preferences shares. Public subscription of shares - over subscription and under subscription of shares; issued at par and at premium, calls in advance and arrears (excluding interest), issue of shares for consideration other than cash. **UT – II EXAMINATION 08 TO 10 AUG, 2024** ***Syllabus for UT – II: Admission of a Partner***	Different assignments can be given to the students to understand the topic through role play method, Quiz, Class Tests

			and Retirement and Death of Partner	
SEPTEMBER 2024	17	30	**Accounting for Share Capital (cont.)** • Concept of Private Placement and EmployeeStock Option Plan (ESOP), Sweat Equity. • Accounting treatment of forfeiture andreissue of shares. • Disclosure of share capital in the Balance Sheet of a company. **Accounting for Debentures** **• Accounting for Debentures** • Debentures: Meaning, types, Issue of debentures at par, at a premium and at a discount. Issue of debentures for consideration other than cash; Issue of debentures with terms of redemption, Debentures issued as collateral security-concept, interest on debentures (concept of TDS is excluded), Writing off discount / loss on issue of debentures. **Note:** Discount or loss on issue of debentures to be written off in the year debentures are allotted from Security Premium Reserve (if it exists) and then from Statement of Profit and Loss as Finance Cost(AS-16) **Revision for Term 1 Examination** **TERM 1 EXAM 23 September to 04 October, 2024** ***Syllabus for Term – I Exam: Part A (Accounting for Partnership and Companies***	Different assignments can be given to the students to understand the topic through role play method, Quiz, Class Tests
OCTOBER 2024	18	24	**Unit-4 Analysis of Financial Statements:-(Part)** **Financial statements of a Company:** Meaning, Nature, Uses and importance of financial Statement. Statement of Profit and Loss and Balance Sheet in prescribed form with major headings and sub headings (as per Schedule III to the Companies Act, 2013) Note: Exceptional items, extraordinary items and profit (loss) from discontinued operations are excluded. • Financial Statement Analysis: Meaning, Significance, Objectives, importance and limitations. • Tools for Financial Statement Analysis: Cash flow analysis, ratio analysis.	Different assignments can be given to the students to understand the topic through role play method, Quiz, Class Tests

			Unit-4 Analysis of Financial Statements :-(Part) **Accounting Ratios**: Meaning, Objectives, Advantages, classification and computation. • Liquidity Ratios: Current ratio and Quick ratio. • Solvency Ratios: Debt to Equity Ratio, Total Asset to Debt Ratio, Proprietary Ratio and Interest Coverage Ratio. Debt to Capital Employed Ratio.	
NOVEMBER 2024	20	26	**Unit-4 Analysis of Financial Statements :-(Part)** **Accounting Ratios**: Activity Ratios: Inventory Turnover Ratio, Trade Receivables Turnover Ratio, Trade PayablesTurnover Ratio, Fixed Asset Turnover Ratio, Net Asset Turnover Ratio and Working Capital Turnover Ratio. • Profitability Ratios: Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio and Return on Investment. **NOTE**: Net profit ratio is to be calculated on the basis of profit before and after tax **Unit 5: Cash Flow Statement** Meaning, objectives Benefits, Cash and Cash Equivalents, Classification of Activities and preparation (as per AS 3 (Revised) (Indirect Method only) Note: (i) Adjustments relating to depreciation and amortization, profit or loss on sale of assets is including investments, dividend (both final and interim) and tax. (ii) Bank overdraft and cash credit to be treated as short term borrowings. (iii) Current Investments to be taken as Marketable securities unless otherwise specified. Meaning, objectives Benefits, Cash and Cash Equivalents, Classification of Activities and preparation (as per AS 3 (Revised) (Indirect Method only) **Note:**Previous years' Proposed Dividend to be given effect, as prescribed in AS-4, Events occurring after the Balance Sheet date. Current years' Proposed Dividend will be	Different assignments can be given to the students to understand the topic through case-based questions, Quiz, Class Tests, Card based identification of different activities of Cash Flow Statement

			accounted for in the next year after it is declared by the shareholders.	
DECEMBER 2024	12	20 P. Work	**Revision for Pre-Board – I Exam** **PRE-BOARD – I EXAM 04 TO 14 DEC. 2024** **Revision for Pre-Board – II Exam**	Practice of Sample Papers, Practice Tests
JANUARY 2025	14		**Revision for Pre-Board – II Exam** **PRE-BOARD – II EXAM 20 TO 30 JAN. 2025**	Practice of Sample Papers, Practice Tests
FEBRUARY 2025	22		**PRACTICAL EXAMINATION OF CBSE** **And** **Revision for Annual Examination**	Practice of Sample Papers, Practice Tests

SUGGESTED QUESTION PAPER PATTERN BY CBSE
Accountancy (Code No. 055)
Class XII (2024-25) Theory: 80 Marks 3 hrs. Project: 20 Marks

SN	Typology of Questions	Marks	Percentage
1	**Remembering and Understanding:** Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	44	55%
2	**Applying:** Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	19	23.75%
3	**Analysing, Evaluating and Creating:** Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	17	21.25%
	Total	80	100%

NAVODAYA VIDYALAYA SAMITI

CLASS: - XII (2024-25) **SUBJECT: BUSINESS STUDIES (054)**

THEORY - 80 MARKS **TIME-3 HRS**

PROJECT - 20 MARKS

Units		Periods	Marks
Part A	**PRINCIPLES AND FUNCTIONS OF MANAGEMENT**		
1	Nature and significance of Management	12	16
2	Principles of Management	14	
3	Business Environment	12	
4	Planning	14	14
5	Organizing	15	
6	Staffing	16	20
7	Directing	15	
8	Controlling	12	
	TOTAL	**110**	**50**
Part B	**BUSINESS FINANCE AND MARKETING**		
1	Financial Management	20	15
2	Financial Markets	18	
3	Marketing	30	15
4	Consumer Protection	12	
	TOTAL	**80**	**30**
Part C	**Project Work (One)**		
1	Project File		12
2	Viva		08
	TOTAL	**30**	**20**

PART A: PRINCIPLES AND FUNCTIONS OF MANAGEMENT				
Month	**No. of Days**	**No. of Periods**	**Main Topic and Subtopics to be covered**	**Activities/Projects/ Practical/ Experiments to be held/Specific Assessment Tools suggested**
APRIL 2024	**22**	**36**	**Unit. 01 – Nature and significance of Management** Management - Concept, objectives, and importance. Management as Science, Art and Profession Levels of Management Management functions-planning, organizing, staffing, directing and controlling - Coordination- concept and importance **Unit. 02 – Principles of Management** Principles of Management - Concept and significance Fayol's principles of management Taylor's Scientific management- principles and techniques **Unit. 03 – Business Environment** Business Environment - Concept and Importance. Dimensions of Business Environment-Economic, Social, Technological, Political and Legal **UT – I EXAMINATION 26 TO 29 APRIL, 2024** ***Syllabus for UT – I: Nature and Significance of Management, Principles of Management***	Project work, Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play
JULY 2024	**26**	**42**	**Unit. 03 – Business Environment** Demonetization - concept and features **Unit. 04 – Planning** Concept, importance and limitation Planning process Single use and standing plans. Objectives, Strategy, Policy, Procedure, method Rule, budget and Programme **Unit. 05 – Organizing** Organizing - Concept and importance Organizing process Structure of organization- functional and divisional concept. Formal and informal organization- concept Delegation: concept, elements and importance Decentralization: concept and Importance **Unit. 06 – Staffing** Concept and importance, Staffing as a part of Human Resource Management concept, Staffing Process, Recruitment Process, sources	Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play

AUGUST 2024	**22**	**33**	**Staffing (continuation)** Selection Process, Training and Development - Concept and importance, Methods of training - on the job and off the job - vestibule training, apprenticeship training and internship training **Unit. 07 – Directing** Concepts and importance Elements of directing Motivation - concept, Maslow's hierarchy of needs, Financial and non-financial incentives Leadership - concept, styles - authoritative, democratic and laissez faire Communication - concept, formal and informal communication; barriers to effective communication, how to overcome the barriers **Unit. 08 – Controlling** Concept and importance, Relationship between planning and controlling, Steps in process of control **UT – II EXAMINATION 08 TO 10 AUG, 2024** ***Syllabus for UT – II: Business Environment, Planning and Organising***	Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play
SEPTEMBER 2024	**17**	**22+ 5 P. Work**	**Unit. 08 – Controlling** Relationship between planning and controlling, Steps in process of control **Unit. 09 – Financial Management** Concept, role and objectives of Financial Management Financial decisions: investment, financing and dividend- Meaning and factors affecting Financial Planning - concept and Importance Capital Structure – concept and factors affecting capital structure **Revision for Term 1 Examination** **TERM 1 EXAM 23 September to 04 October, 2024** ***Syllabus for Term – I Exam: Nature and Significance of Management to Controlling***	Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play
OCTOBER 2024	**18**	**32**	**Unit. 09 – Financial Management** Fixed and Working Capital - Concept and factors affecting their requirements **Unit. 10 – Financial Markets** Financial Markets: Concept Money Markets: Concept Capital market and its types (primary and secondary) Stock Exchange - Functions and trading procedure	Project work, Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play

			Securities and Exchange Board of India (SEBI) - objectives and functions **Unit. 10 – Marketing** Marketing – Concept, functions and philosophies Marketing Mix – Concept and elements Product - branding, labelling and packaging – Concept	
NOVEMBER 2024	**20**	**35**	**Unit. 10 – Marketing** Price - Concept, Factors determining price Physical Distribution – concept, components and channels of distribution Promotion – Concept and elements; Advertising, Personal Selling, Sales Promotion and Public Relations **Unit. 10 – Consumer Protection** Concept and importance of consumer protection The Consumer Protection Act, 2019:Source: http://egazette.nic.in/WriteReadData/2019/210422.pdf Meaning of consumer, Rights and responsibilities of consumers, who can file a complaint? Redressal machinery, Remedies available Consumer awareness - Role of consumer organizations and Non-Governmental Organizations (NGOs)	Project work, Quiz, Mind map, Class Tests, Crossword Puzzles, Case Studies, Role Play
DECEMBER 2024	**12**		**Revision for Pre-Board – I Exam** **PRE-BOARD – I EXAM 04 TO 14 DEC. 2024** **Revision for Pre-Board – II Exam**	Practice of Sample Papers and Practice Tests
JANUARY 2025	**14**		**Revision for Pre-Board – II Exam** **PRE-BOARD – II EXAM 20 TO 30 JAN. 2025**	Practice of Sample Papers and Practice Tests
FEBRUARY 2025	**22**		**PRACTICAL EXAMINATION OF CBSE** **And** **Revision for Annual Examination** **ANNUAL EXAMINATION 15 FEB. 2025 ONWARDS**	Practice of Sample Papers and Practice Tests

SUGGESTED QUESTION PAPER PATTERN BY CBSE
Business Studies (Code No. 054)

Class XII (2024-25) **Theory: 80 Marks** **Project: 20 Marks**

SN	Typology of Questions	Marks	Percentage
01	**Remembering and Understanding:** Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	44	55%
02	**Applying:** Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way	19	23.75%
03	**Analyzing, Evaluating and Creating:** Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	17	21.25%
	Total	80	100%

NOTE: - Any change in the syllabus, if announced by the CBSE during the academic year 2023-24, has to be incorporated in the split-up syllabus by the concerned teachers accordingly. In this regard Teachers are requested to be in touch with the CBSE website.

NAVODAYA VIDYALAYA SAMITI,
CLASS : XII SUBJECT : COMPUTER SCIENCE

MAX. MARKS: 100 (70 Theory + 30 Practical)
Distribution of Marks and Periods

Unit No	Name of The Chapter/ unit	Marks	Periods	
			THEORY	PRACTICALS
I	Computational Thinking and Programming - 2	40	70	50
II	Computer Networks	10	15	—
III	Database Management	20	25	20
	Total	70	110	70
	Practicals	30		
	Grand Total	100	110	70

Month.	No. of Days	No.of periods	of Marks for Unit/Chapt	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
April	22	17T+13P	40 MARKS	**UNIT : 1 *Revision of Python topics covered in Class XI.*** **Functions:** • types of function (built-in functions, • functions defined in module, • user defined functions), • creating user defined function, • arguments and parameters, • default parameters, • positional parameters, • function returning value(s), • flow of execution, • scope of a variable (global scope, local scope)	Revision of all concepts of Python programming taught in class XI i.e. Strings, Conditional statements, iterative statement, list, tuples, dictionaries and Predefined functions in random module, math module etc Python programs to implement Functions, passing parameters and returning values.
PWT-01/UT- 01 (26-29 APRIL 2024)					

Month.	No. of Days	No.of periods	of Marks for Unit/Chapt	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
JULY	27	16T + 14 P		**Introduction to files**, types of files (Text file, Binary file, CSV file), relative and absolute paths Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file	Python programs to open and close the file, read write and append to a file. Python program to implement text files and binary files. Projects can be assigned with data file handling.
AUGUST	22	16T + 14 P		**Introduction to files** (Continued….) • Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file. • CSV file: import csv module, open / close csv file, write into a csv file using csv.writer() and read from a csv file using csv.reader( )	Python programs to implement Binary file. Python programs to implement Stack using lists
PWT-02/ UT- 02 (08-10 AUG 2024)					

Month.	No. of Days	No.of periods	of Marks for Unit/Chapt	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
SEPTEMBER		18T+10P	10 MARKS	**Data Structure:** • Stack, operations on stack (push & pop), • implementation of stack using list. **Unit II: Computer Networks** • Evolution of networking: • introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET) • Data communication terminologies: concept of communication, • components of data communication (sender, receiver, message, communication media, protocols), • measuring capacity of communication media (bandwidth, data transfer rate), IP address, • switching techniques (Circuit switching, Packet switching) • Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves), • Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)	Python programs to implement CSV file. Different Devices used in networking can be shown to the students. Network topologies implemented in the school can be described.
MID TERM (23 SEPT TO 04 OCT 2024)					

Month.	No. of Days	No.of periods	of Marks for Unit/Chapt	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
OCTOBER	22	20T+13P	20 MARKS	**Network topologies and Network types:** types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree) Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting **Unit III:** **Database Management Database concepts**: • introduction to database concepts and its need • Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key) • Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, • data type (char(n), varchar(n), int, float, date), • constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, • operators (mathematical, relational and logical), • aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete Command.	Hands on Networking and various type of topology Installation of Mysql and hands on practicals on various queries on DDL and DML commands. Demonstrating the students to install a suitable connector for connecting databases with python. Projects can be assigned to students to implement applications mentioned in the practical section below.

Month.	No. of Days	No.of periods	of Marks for Unit/Chapt	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
NOVEMBER	26	18T+10P		**Unit III:** **Database Management Database concepts**: (Continued…..) aggregate functions (max, min, avg, sum, count), group by, having clause Joins: cartesian product on two tables, equi-join and natural join **Interface of python with an SQL database:** connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications	Programs on connecting python with sql and executing the queries through python programs and printing the result with various fetch methods.
DECEMBER Revision, Project Work Preparation & I Pre Board Examination					
JANUARY Revision, Finalisation of Project & II Pre Board Examination					
FEBRUARY Revision, CBSE Practical Examination					
MARCH - APRIL CBSE Board Examination					

Practical

S.No	Unit Name	Marks (Total=30)
1	Lab Test: 1. Python program (60% logic + 20% documentation + 20% code quality)	8
	2. SQL queries (4 queries based on one or two tables)	4
2	Report file: • Minimum 15 Python programs. • SQL Queries – Minimum 5 sets using one table / two tables. • Minimum 4 programs based on Python - SQL connectivity	7
3	Project (using concepts learnt in Classes 11 and 12)	8
4	Viva voce	3

Suggested Practical List:
Python Programming

- Read a text file line by line and display each word separated by a #.
- Read a text file and display the number of vowels/consonants/uppercase/lowercase characters in the file.
- Remove all the lines that contain the character 'a' in a file and write it to another file.
- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
- Write a Python program to implement a stack using list.
- Create a CSV file by entering user-id and password, read and search the password for given user id.

Database Management

- Create a student table and insert data.

Implement the following SQL commands on the student table:

- ALTER table to add new attributes / modify data type / drop attribute
- UPDATE table to modify data
- ORDER By to display data in ascending / descending order
- DELETE to remove tuple(s)
- GROUP BY and find the min, max, sum, count and average
- Similar exercises may be framed for other cases.
- Integrate SQL with Python by importing a suitable module.

Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XII)
- Support Materials on the CBSE website.

Project

- The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity. This should be done in groups of two to three students and should be started by students at least 6 months before the submission deadline. The aim here is to find a real world problem that is worthwhile to solve. Students are encouraged to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves. The students should be

sensitised to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

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NAVODAYA VIDYALAYA SAMITI,

CLASS : XII SUBJECT : INFORMATICS PRACTICES

MAX. MARKS: 100 (70 Theory + 30 Practical) Distribution of Marks and Periods					
Unit No	**Unit Name**	**Marks**	**Periods**		
		Theory	**Theory**	**Practical**	**Total**
1	Data Handling using Pandas and Data Visualization	**25**	**25**	**25**	**50**
2	Database Query using SQL	**25**	**20**	**17**	**37**
3	Introduction to Computer Networks	**10**	**12**	**0**	**12**
4	Societal Impacts	**10**	**14**	**–**	**14**
Project		**–**	**–**	**7**	**7**
Practical		**30**	**–**	**–**	**–**
TOTAL		**100**	**71**	**49**	**120**

Month.	No. of Days	No.of periods	Weightage of Marks for Unit/Chapter	Units/Subunits/Topics/Chapters to be Covered	Details of Activity/Practical/ Projects
April	**22**	**18T+10P**	**25 MARKS**	**Unit 1: Data Handling using Pandas and Data Visualization** **Data Handling using Pandas – I** • Introduction to Python libraries – Pandas, Matplotlib. • Data Structures in Pandas – Series and DataFrames • Series:CreationofSeriesfrom– ndarray,dictionary, scalar value; mathematical operations; Headand Tail functions; Selection, Indexing, and Slicing.	Practice of topics and Practical programs. Activities as specified in NCERT Textbook.
PWT-01/UT- 01 (26-29 APRIL 2024)					

JULY	**27**	**10T+16P**	**CONTINUE**	4. Data Frames: creation – from the dictionary of Series, 5. list of dictionaries, Text / CSV files; display; iteration; 6. Operations on rows and columns: add, select, delete,rename; 7. Head and Tail functions; Indexing usingLabels, Boolean Indexing.	The practice of topics and Practical programs. Activities as specified in NCERT Textbook.
AUGUST	**22**	**16T+12P**	**25 MARKS**	• Importing / Exporting Data between CSV files and DataFrames. **Data Visualization** • Purpose of plotting; drawing and saving the following typesofplotsusingMatplotlib– lineplot,bargraph, and histogram. • Customizing plots: adding labels, titles, and legend in plots. **Unit 2: Database Query using SQL** • Math functions: POWER(), ROUND( ), MOD( ) • Text functions: UCASE() / UPPER( ), LCASE( ) / LOWER(), • MID( ) / SUBSTRING( ) / SUBSTR(), LENGTH( ), LEFT( ), RIGHT( ), INSTR( ), LTRIM( ), RTRIM( ), TRIM( ). • Date Functions: NOW(), DATE(), MONTH(), MONTHNAME( ), YEAR( ), DAY( ), DAYNAME( ).	The practice of topics. and Practical programs and SQL.
PWT-02/ UT- 02 (08-10 AUG 2024)					
SEPTEMBER		**10T+16P**	**CONTINUE.**	• Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); usingCOUNT (*). • Querying and manipulating data using Groupby, Having, and Order by clauses.	The practice of topics. and Practical programs and SQL.
MID TERM (23 SEPT TO 04 OCT 2024)					

OCTOBER	**22**	**20T+08P**	**10 MARKS**	**Unit 3: Introduction to Computer Networks** • Introduction to networks, Types of networks: LAN, MAN, WAN • Network Devices: modem, hub, switch, repeater, router,gateway • Network Topologies: Star, Bus, Tree,Mesh • Introduction to Internet, URL, WWW, and its applications – Web, email, Chat, VoIP. • Website: Introduction, the difference betweena website and webpage, static vs dynamic web page, web server, and hosting of a website. • Web Browsers: Introduction, commonly used browsers, browser settings, add-ons, plug-ins, cookies.	Activities as specified in the NCERT Textbook
NOVEMBER	**26**	**20T+08P**	**10 MARKS**	**Unit 4: Societal Impacts** 1. Digital footprint, net, and communication etiquettes, data protection, intellectual property rights (IPR) • plagiarism, licensing and copyright, free and open-source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyberbullying, an overview of the Indian ITAct. • E-waste: hazards andmanagement. • Awareness about health concerns related to the usage oftechnology.	Practical on MySQL functions Browsers and Websites Project Work
DECEMBER Revision, Project Work Preparation & I Pre Board Examination					
JANUARY Revision, Finalisation of Project & II Pre Board Examination					
FEBRUARY Revision, CBSE Practical Examination					
MARCH - APRIL CBSE Board Examination					

Practical

S.No.	Unit Name	Marks
1	Programs using Pandas and Matplotlib	8
2	SQL Queries	7

3	Practical file (minimum of 15 programs based on Pandas, 4 based on Matplotlib, and 15 SQL queries mustbe included)	5
4	Project Work (using concepts learned in classes XI and XII)	5
5	Viva–Voce	5
	Total	**30**

Suggested Practical List
Data Handling

1. Create a panda's series from a dictionary of values and a ndarray
2. Given a Series, print all the elements that are above the 75th percentile.
3. Create a Data Frame quarterly sales where each row contains the item category, item name, and expenditure. Group the rows by the category and print the total expenditure per category.
4. Create a data frame for examination result and display row labels, column labels data types of each column and the dimensions
5. Filter out rows based on different criteria such as duplicate rows.
6. Importing and exporting data between pandas and CSV file

Visualization

1. Given the school result data, analyses the performance of the students on different parameters, e.g subject wise or class wise.
2. For the Data frames created above, analyze, and plot appropriate charts with title and legend.
3. Take data of your interest from an open source (e.g. data.gov.in), aggregate and summarize it. Then plot it using different plotting functions of the Matplotlib library.

Data Management

1. Create a student table with the student id, name, and marks as attributes where thestudent id is the primary key.
2. Insert the details of a new student in the above table.
3. Delete the details of a student in the above table.
4. Use the select command to get the details of the students with marks more than 80.
5. Find the min, max, sum, and average of the marks in a student marks table.
6. Find the total number of customers from each country in the table (customer ID,customer Name, country) using group by.

7. Write a SQL query to order the (student ID, marks) table in descending order of themarks.

Project Work

The class project aims to create tangible and useful IT applications. The learner may identify a real-world problembyexploringtheenvironment.E.g.,Studentscanvisitshops/businessplaces,communities,orother organizationsintheirlocalitiesandinquireabouttheorganization'sfunctioningandhowdataaregenerated, stored, andmanaged.

The learner can take data stored in CSV or database files, analyse using Python libraries, and generate appropriate charts to visualize.

If an organization maintains data offline, the learner should create a database using MySQL and store the data in tables. Data can be imported into Pandas for analysis and visualization.

LearnerscanusePythonlibrariesoftheirchoicetodevelopsoftwarefortheirschooloranyothersocialgood.

Learnersshouldbesensitizedtoavoidplagiarismandviolationofcopyrightissueswhileworkingonprojects. Teachers should take the necessary measures for this. Any resources (data, images, etc.) used in the project must be suitablyreferenced.

Theprojectcanbedoneindividuallyoringroupsof2to3students.Students should start the project at least 6 months before the submissiondeadline.

Note:

Any changes in the syllabus, if announced by CBSE during the academic year 2024–25, have to be incorporated in the split-up syllabus by the concerned teachers and Principals accordingly. In this regard, Principals and teachers will always remain in touch with CBSE and its website.

NAVODAYAVIDYALAYASAMITI
CLASS: XII (2024-25)
COURSE STRUCTURE

SUBJECT: BIOTECHNOLOGY SUBJECT CODE: 045
One Paper **Max. Marks: 70+30**
Time: 3 hrs.

Unit No	Nameof TheChapter/ unit	Marks	Periods
UNIT-V Protein and Gene Manipulation	**CHAPTER1:** RecombinantDNATechnology	10	25
	CHAPTER2: Protein Structure and Engineering	14	25
	CHAPTER3: Genomics,ProteomicsandBioinformatics	16	28
UNIT-VI Cell Culture and Genetic Manipulation	**CHAPTER4 :** MicrobialCellCulture andits Applications	8	25
	CHAPTER5: PlantCellCultureandApplications	12	18
	CHAPTER6: AnimalCellCultureandApplications	10	15
	Practical	30	Two Periods Per Week
	TOTAL	**100**	**136**

SUBJECT: BIOTECHNOLOGY (Theory)

CLASS-XII SUBJECTCODE: 045

One Paper Time: 3 hrs. Max. Marks: 70

Month	No. OfDays	No. Period	Units/Subunits/Chapters/topics/ to be covered	Details of practical/ projecttobe given	Spotters /Activities	Tests/ Assignments
APRIL2024	22	22+6=28	**UnitV:ProteinandGene Manipulation** **Chapter1:RecombinantDNA Technology** Introduction, tools of Recombinant DNA technology, Making rDNA molecule, Introductionofrecombinant DNAintohostcells, Identification of recombinants, Polymerase Chain Reaction (PCR), DNA sequencing.	1. Use of special equipmentin biotechnology experiments. 2. Isolation of bacterial plasmidDNA		**UT-1**
JULY2024	26	26+8=34	**Chapter-2: ProteinStructureandEngineering** Introductiontotheworldofproteins, Structure-function, Relationship in proteins,Characterizationofproteins, Protein based products, Designing proteins (Protein Engineering).	➢ Detection of DNA by gel electrophoresis ➢ Estimation of DNAby UV-Spectroscopy	❖ Testthe presence of proteins. ❖ Estimate the amount of proteinsinplant and animal samples.	
AUGURST 2024	22	22+6=28	**Chapter3.Genomics,Proteomics and Bioinformatics** Gene prediction and counting, Genome similarity, SNPs and Comparative genomics, Functional genomics, Proteomics, Information sources, Analysis using bioinformatics tools.	➢ Readingof aDNA sequencing gel to arriveat thesequence. ➢	❖ Preparealist of the scope of stem cell technology.	**UT-2**

Month	No. OfDays	No. Period	Units/Subunits/Chapters/topics/ to be covered	Details of practical/ projecttobe given	Spotters /Activities	Tests/ Assig nments
SEPTEMBER2024	17	17+5=22	**Unit VI: CellCultureandGenetic Manipulation** **Chapter4: MicrobialCellCultureandits Applications** Introduction,Microbialnutritiona nd culturetechniques,Measurementa nd kinetics of microbial growth, Isolation of microbial products, Strain isolation and improvement, Applications of microbial culture technology.	➢ Cellviabilityass ayusingEvan'sb luedye exclusion method. ➢ Isolationofbact eriafrom curd&staining of bacteria		**MID-TERM (TERM-I)**
OCTOBER2024	18	18+6=24	**Chapter5: PlantCellCultureandApplications** Introduction, Cell and tissue culture techniques, Applications of cell and tissueculture,Genetransfermethods in plants, Transgenic plants with beneficial traits, Biosafety of transgenic plants.	➢ Projectwork		
NOVEMBER 2024	20	20+6=26	**Chapter6: AnimalCellCultureandApplication s** Introduction,Animalcellculturetechniqu es,Applicationsof animal cell culture, Stem cell technology.			
DECEMBER 2024	10	10+2=12	**DECEMBER 2024**: Revision, Practicetest and**PRE-BOARD-I**			**PB-I**
JANUARY 2025	05	05+02=07	**JANUARY 2025:** Revision, Practicetest, and **PRE-BOARD-II**			**PB-II**

Month	No. OfDays	No. Period	Units/Subunits/Chapters/topics/ to be covered	Details of practical/ projecttobe given	Spotters /Activities	Tests/ Assig nments
FEBRUARY 2025	12	12+4=16	**FEBRUARY 2025:** Revision, Practicetest and **CBSE ANNUAL EXAM (From 15 Feb 2025 onwards as per CBSE Schedule)**			**CBSE ANNUAL EXAM**

PRACTICALS 30 Marks

Note: **Every student will be required to do the following experiments during the academic session.**

1. Useofspecialequipmentinbiotechnology experiments
2. Isolationofbacterialplasmid DNA
3. DetectionofDNAbygel electrophoresis
4. Estimation of DNAby UVspectroscopy
5. Isolation of bacteria from curd & staining of bacteria
6. CellviabilityassayusingEvan'sbluedye exclusion method
7. DataretrievalanddatabasesearchusinginternetsiteNCBIanddownloadaDNA and protein sequence from internet, analyze it and comment on it
8. Readingof aDNA sequencing gel to arriveat thesequence
9. Projectwork

Scheme of Evaluation

Time: 3Hours **Max. Marks 30**

The scheme of evaluation at the end of the session will be as under:

A	Twoexperiments	6+6 (onlyonecomputer based practical)
	Practicalrecord	04
	Vivaon Practical	04
B	Projectwork	
	Writeup	05
	Vivaon project	05

	Total	**30**

Note: -Morenemphasis should be given on handsonworkin projects.Prescribed Books:

1. **AText Book of Biotechnology** -Class XI: Published by CBSE, New Delhi
2. **Asreference- Biotechnology**-ClassXI:Published byNCERT, New Delhi
3. **A Laboratory Manual of Biotechnology** -ClassXI:Publishedby CBSE,New Delhi
4. **ATextBook of Biotechnology-Class XII**: Publishedby CBSE,New Delhi
5. **A Laboratory Manual of Biotechnology**-Class XII:PublishedbyCBSE,NewDelhi