

SENIOR SCHOOL CURRICULUM 2013

VOLUME 1

**Effective from the academic session 2011 -2012 of Class XI
For the Board Examination to be held in 2013.**



CENTRAL BOARD OF SECONDARY EDUCATION

**Shiksha Kendra, 2, Community Centre, Preet Vihar, Vikas Marg,
Delhi-110092**

C.B.S.E., Delhi-110092

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Note: The Board reserves the right to amend the Syllabi and Courses as and when it deems necessary. The Schools are required to strictly follow the Syllabi and textbooks prescribed by the Board for the academic sessions and examinations concerned. No deviation is permissible.

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भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण 'प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म

और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता

प्राप्त कराने के लिए,
तथा उन सब में,

व्यक्ति की गरिमा और ² राष्ट्र की एकता
और अखण्डता सुनिश्चित करने वाली बंधुता

बढ़ाने के लिए

दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई० को एतद्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

1. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977 से), "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्तव्य

51 क. मूल कर्तव्य - भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह -

- (क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;
- (ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;
- (ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;
- (घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;
- (ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;
- (च) हमारी सामाजिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परीक्षण करे;
- (छ) प्राकृतिक पर्यावरण को जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणिमात्र के प्रति दयाभाव रखे;
- (ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;
- (झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;
- (ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a **'SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the ² unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

-
1. Subs. by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic (w.e.f. 3.1.1977)
 2. Subs. by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation (w.e.f. 3.1.1977)

THE CONSTITUTION OF INDIA

Chapter IV A

Fundamental Duties

ARTICLE 51 A

Fundamental Duties - It shall be the duty of every citizen of India-

- (a) to abide the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

Curriculum updation is a continuous process, as such the Board brings out the revised curricula every year. It is obligatory for the School and the students preparing for the Board's Examination of a particular year to follow the syllabi, courses and the books prescribed by it for that year. No deviation from the ones prescribed is permissible. All concerned are, therefore, strongly advised to purchase the curriculum prescribed for the year concerned from the CBSE Headquarters or its Regional Offices for their information and use. Orders with the required price and postage can be placed with the Store Keeper (Publications) at the Headquarters or with the Regional Office of the zone as the case may be. Readers are also advised to refer to the details given at the end of the publication. The syllabi and courses in Regional and Foreign Languages have been provided in the Volume II printed separately which is also a priced publication.

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PART I
ELIGIBILITY REQUIREMENTS, SCHEME OF
STUDIES AND SCHEME OF EXAMINATIONS

1. ELIGIBILITY OF CANDIDATES

1. Admission of Students to a school: Transfer/Migration of Students

Admission: General Conditions:

1.1 A student seeking admission to any class in ‘School’ will be eligible for admission to that class only if he:-

- (i) has been studying in a school recognised by or affiliated to this Board or any other recognised Board of Secondary Education in India;
- (ii) has passed qualifying or equivalent qualifying examination making him eligible for admission to that class;
- (iii) satisfies the requirements of age limits (minimum and maximum) as determined by the State/ U. T. Government and applicable to the place where the school is located; and
- (iv) produces:-
 - (a) the School Leaving Certificate/transfer certificate signed by the Head of the Institution last attended and countersigned;
 - (b) document(s) in support of his having passed the qualifying or equivalent qualifying examination; and
 - (c) Date of Birth Certificate issued by the Registrar of Births and Deaths, where-ever existing, as proof of date of birth.

Explanation:-

- (a) A person who has been studying in an institution which is not recognised by this Board or by any other recognised Board of Secondary Education or by the State/ U. T. Government of the concerned place shall not be admitted to any class or a “School” on the basis of Certificate(s) of such unrecognised institutions attended by him earlier.
- (b) ‘Qualifying Examination’ means an examination-the passing of which makes a student eligible for admission to a particular class; and ‘equivalent examination’ means an examination conducted by any recognised Board of Secondary Education/Indian University or an institution recognised by or affiliated to such Board/University and is recognised by the Board equivalent to the corresponding examination conducted by this Board or conducted by a “School” affiliated to/recognised by this Board.

1.2 No student migrating from a school in a foreign country other than the school affiliated to this Board, shall be eligible for admission unless an eligibility certificate in respect of such a student has been obtained from this Board. For obtaining eligibility certificate from the Board, the Principal of the School to which admission is being sought will submit to the Board full details of the case and relevant documents with his own remarks/ recommendations. The eligibility certificate will be issued by the Board only after the Board is satisfied that the course of study undergone and examination passed is equivalent to corresponding class of this Board.

- 1.3** No person who is under the sentence of rustication or is expelled from any Board/University/School or is debarred from appearing in the examination for whatever reason by any Board/University shall be admitted to any class in a School affiliated to this Board.
- 1.4** No student shall be admitted or promoted to any subsequent higher class in any school unless he has completed the regular course of study of the class to which he was admitted at the beginning of the academic session and has passed the examination at the end of the concerned academic session, qualifying him for promotion to the next higher class.
- 1.5** No student shall be admitted in **Class XI** and above in a school affiliated with the Board after 31st day of August of the year except with prior permission of the Chairman, CBSE/Competent Authority as may have been defined in the State/Union Territory Education Acts. The application for permission to grant admission after 31st August shall be routed through the Principal of the school specifying the reasons which are unavoidable. The candidate shall complete the required 'percentage of attendance (75%) for **Class XI & XII** as per Examination Bye-Laws of the Board to make him/her eligible for the examinations. In such cases where the admission by the candidate could not be taken in a higher class by the stipulated date because of the late declaration of result by the Board such permission would not be required, provided the candidate applied for admission within a fortnight of the declaration of the result.

2. Admission to Class XI

- 2.1** Admission to class XI in a school shall be open only to such a student who has:
- (a) Obtained minimum Grade D in at least five subjects of external examination as per the Scheme of Studies and a Qualifying Certificate at the Secondary School(Class X) Examination conducted by this Board/Senior Secondary School affiliated to this Board.
 - (b) Has passed an equivalent examination conducted by any other recognised Board of Secondary Education/Indian University and recognised by this Board as equivalent to its secondary school examination; and

Notwithstanding anything contained in the rules above, Chairman shall have the powers to permit admission in Class XI in respect of such students who have opted for not appearing for the Secondary School examination conducted by the Board but changing school after passing the Secondary School examination conducted by a Senior Secondary school affiliated to the Board on grounds of shifting of family from one place to another, transfer of parent(s), for better academic performance or on medical grounds etc. to avoid undue hardship to the candidate(s).

3. Admission to Class XII:

- (i) As the syllabus prescribed at Senior level is of two years integrated course, no admission shall be taken in class XII directly. Provided further that admission to Class XII in a school shall be open only to such a student who:
 - (a) has completed a regular course of study for Class XI and has passed class XI examination from an institution affiliated to this Board;
 - (b) has completed a regular course of study of Class XI and has passed class XI examination from an institution affiliated to this Board and migrating from one city/

State to another only on the transfer of the parent(s) or shifting of their families from one place to another, after procuring from the student the mark sheet and the Transfer Certificate duly countersigned by the Board; and

- (c) has completed a regular course of study for class XI and has passed class XI examination from a institution recognised by / affiliated to any recognised Board in India can be admitted to a school affiliated to this Board only on the transfer of the parent(s) or shifting of their families from one place to another, after procuring from the student the mark sheet and the Transfer Certificate duly countersigned by the Educational Authorities of the Board concerned.

Notwithstanding anything contained in the rules above, Chairman shall have the powers to allow change of school for better academic performance, medical reason etc. to avoid undue hardship to the candidate(s).

In case of all such admissions the schools would obtain post facto approval of the Board within one month of admission of the student.

4. (i) Notwithstanding anything contained in paras 1 to 5 of this Byelaws, the admission of students passing qualifying examination from an examination body outside India shall be regulated according to the provisions contained in clause 1.2 of this chapter; provided that the condition of completing regular course of study for class XI is satisfied in cases of admission to Class XII.

5. Admission Procedure

- (i) Admission register in the form prescribed by the State Government concerned/Kendriya Vidyalaya Sangathan/Navodaya Vidyalaya Samiti as the case may be, shall be maintained by the "School" where the name of every student joining "The School" shall be entered.
- (ii) Successive numbers must be allotted to students on their admission and each student should retain this number throughout the whole of his career in the school. A student returning to the school after absence of any duration shall resume admission on his original number.
- (iii) If a student applying for admission to a school has attended any other school, an authenticated copy of Transfer Certificate in the format given in the Examination Bye-Laws from his last school must be produced before his name can be entered in the admission Register.
- (iv) In no case shall a student be admitted into a class higher than that for which he is entitled according to the Transfer Certificate.
- (v) A student shall not be allowed to migrate from one "School" to another during the session after his name has been sent up for the **Senior School Certificate(Class XII) Examinations conducted by the Board**. This condition may be waived only in special circumstances by the Chairman.
- (vi) A student leaving his school at the end of a session or who is permitted by the school during the session shall on a payment of all dues, receive an authenticated copy of the Transfer Certificate up-to-date. A duplicate copy may be issued if the Head of the institution is satisfied

that the original is lost but it shall always be so marked.

- (vii) In case a student from an institution not affiliated to the Board seeks admission in a school affiliated to the Board, such a student shall produce a transfer certificate duly countersigned by an authority as indicated in the format given in Examination Bye-Laws.
- (viii) If the statement made by the parent or guardian of a student or by the student himself/herself, if he/she was major at the time of his/her admission to a school, is found to contain any wilful misrepresentation of facts regarding the student's career, the head of the institution may punish him/her as per provision of the Education Act of the State/ Union Territory or Kendriya Vidyalaya Sangathan/Navodaya Vidyalaya Samiti Rules, as the case may be, respectively and report the matter to the Board.

6. Admission to Examinations

General

Notwithstanding anything contained in these Byelaws, no candidate who has been expelled or is under the punishment of rustication or is debarred for appearing in or taking an examination for any reason whatsoever, shall be admitted to the All India/Delhi Senior School Certificate Examinations conducted by the Board

All India/Delhi Senior School Certificate Examinations:

7. Academic Qualification for Undertaking Examinations:

7.1 A candidate for All India/Delhi Senior School Certificate Examination should have obtained/ passed the following at least two years earlier than the year in which he/she would take Senior School Certificate Examination (Class XII) of the Board :

- (a) (i) obtained minimum Grade D in at least five subjects of external examination and a Qualifying Certificate at the Secondary School Examination(Class X) conducted by the Board , or
- (ii) obtained minimum Grade D in the Scholastic areas as well as satisfactory Grades in Co-Scholastic areas under the Continuous and Comprehensive Evaluation scheme in the Secondary School examination conducted by the school affiliated to the Board upto Senior Secondary level and Certificate of School -,Based Assessment duly signed by the Board or
- (iii) has passed an equivalent examination conducted by any other recognised Board/University.
- (iv) has passed Class XI examination from an institution affiliated to this Board or an insitution recognized by / affiliated to any recognized Board in India atleast one year earlier than the year in which he would take Senior School Certificate Examination of the Board.

8. Admission to Examinations: Regular Candidates

All India/Delhi Senior School Certificate Examination will be open to such regular candidates who have submitted their duly completed application for admission to the concerned examination, and/or his name in the manner prescribed by the Board, along with the prescribed fee forwarded to the Controller of Examinations by the Head of the Institution/School with the following duly certified by such head:-

- (i) that he possesses the academic qualifications as laid down in Examination Bye-Laws;
 - (ii) that he has not passed equivalent or higher examination from this Board or equivalent or higher examination of any other Board or University;
 - (iii) that he is on the active rolls of the School;
 - (iv) that he has completed a “regular Course of study” as defined and detailed in Examination Bye-Laws in a school in the subjects in which he would appear in the Examination;
 - (v) that he bears a good moral character and is of good conduct; and
 - (vi) that he satisfies all other provisions applicable to him/her, of the Examination Bye-Laws and any other provision made by the Board by governing admission to the examination concerned, if any.
- 9**
- (i) It is mandatory upon a school affiliated to the Board to follow the Examination Bye Laws of the Board in toto.
 - (ii) No affiliated school shall endeavor to present the candidates who are not on its roll nor will it present the candidates of its unaffiliated branch/schools to any of the Board’s Examinations.
 - (iii) If the Board has reasons to believe that an affiliated school is not following the sub-section (i) and (ii) of this section, the Board will resort to penalties as deemed fit.

10. A Regular Course of Study

- (i) The expression “a regular course of study” referred to in the Bye-Law means at least 75% of attendance in the classes held counted from the day of commencing teaching of Class XI/ XII, as the case may be, upto the 1st of the Month preceding the month in which the examination of the School / Board commences. Candidates taking up a subject(s) involving practicals shall also be required to have put in at least 75% of the total attendance for practical work in the subject in the laboratory. Heads of institutions shall not allow a candidate who has offered subject(s) involving practicals to take the practical examination(s) unless the candidates fulfil the attendance requirements as given in this Rule.
- (ii) The candidates who had failed in the same examination in the preceding year and who has rejoined Class XI/XII shall be required to put in 75% of attendance calculated on the possible attendance from the 1st of the month following the publication of the results of that examination by the School/Board upto the 1st of the month preceding the month in which the examination of the School / Board commences.
- (iii) In the case of migration from other institutions, attendance at the institution/school recognised by the Education Department of the State/Union Territory from which the candidate migrates will be taken into account in calculating the required percentage of attendance.

11. Requirement of Attendance in Subjects of Internal Assessment

- (i) No student from a School affiliated to the Board shall be eligible to take the Senior School Certificate Examination conducted by the Board unless he has completed 75% of attendance

counted from the opening of class XII upto the first of the month preceding the month in which the examination commences in the internal assessment.

- (a) No student from a School affiliated to the Board shall be eligible to take the Senior School Certificate Examination conducted by the Board unless he has completed 60% of attendance in respect of students participating in Sports at National level organized by recognized Federations/CBSE/SGFI counted from the opening of class XII upto the first of the month preceding the month in which the examination commences in the subjects of internal assessment. Also no student from a School affiliated to the Board shall be eligible to take the Class XI Examination conducted by the School unless he has completed 60% of attendance in respect of students participating in Sports at National level organized by recognized Federations/CBSE/SGFI in the subjects of internal assessment.
- (ii) Exemption from W.E/Art Education/P & H E may be granted to a candidate on medical grounds in respect of Senior School candidates appearing for the Senior School Certificate Examination conducted by the Board provided the application is supported by a certificate given by a registered medical officer of the rank not below that of Assistant Surgeon and forwarded by the Head of the School with his recommendations.
- (iii) The Chairman shall have the powers to condone shortage of attendances in subjects of internal assessment in respect of Senior School candidates appearing for the Senior School Certificate Examination conducted by the Board.

12. Rules for Condonation of shortage of Attendance

- (i) If a candidate's attendance falls short of the prescribed percentage, in case of students appearing for the Secondary and Senior School Certificate Examinations conducted by the Board, the Head of the School may submit his name to the Board provisionally. If the candidate is still short of the required percentage of attendance within three weeks of the commencement of examination, the Head of the Institution shall report the case to the Regional Officer concerned immediately. If in the opinion of the Head of the Institution, the candidate deserves special consideration, he may submit his recommendation to the Regional Officer concerned not later than three weeks before the commencement of the examination for condonation of shortage in attendances by the Chairman, CBSE who may issue orders as he may deem proper. The Head of the school in his letter requesting for condonation of shortage in attendance, should give the maximum possible attendance by a student counted from the day of commencing teaching of Classes X/XII(beginning of the session) upto the 1st of the month preceding the month in which the examination of the Board commences, attendance by the candidate in question during the aforesaid period and the percentage of attendance by such a candidate during the aforesaid period.
- (ii) Shortage up to 15% only may be condoned by the Chairman in respect of those students appearing for the Senior School Certificate Examination conducted by the Board. Cases of candidates with attendance below 60% class XII, appearing for the Board's examinations, shall be considered for condonation of shortage of attendance by the Chairman only in exceptional circumstances created on medical grounds, such as candidate suffering from serious diseases like cancer, AIDS, TB or similar serious diseases requiring long period of

hospitalization.

- (iii) The Principal shall refer a case of shortage within the above prescribed limit of condonation to the Board, either with the recommendations or with valid reasons for not recommending the case.
- (iv) The following may be considered valid reasons for recommending the cases of the candidates with attendance less than the prescribed percentage:
 - (a) prolonged illness;
 - (b) loss of Father/Mother or some other such incident leading to his absence from the school and meriting special considerations;
 - (c) any other reason of similar serious nature; and
 - (d) authorised participation in sponsored tournaments and Sports Meets of not less than inter school level and NCC/NSS Camps including the days of journeys for such participation shall be counted as full attendance.
 - (e) authorised participation in Sports at National level organised by recognized Federation/CBSE/SGFI.

13. Detaining of Eligible Candidates

In no case the Heads of affiliated schools shall detain eligible candidates from appearing at the examination of the Board.

14. Private Candidates

Definition. Refer Examination Bye-Laws.

15. Persons eligible to appear as ‘Private Candidates’ at Delhi Senior School Certificate (Class XII) Examination:

- i) A candidate who had failed at the Delhi Senior School Certificate Examination of the Board will be eligible to reappear at a subsequent examination as private candidate in the syllabus and text books as prescribed for the examination of the year in which he/she will reappear.
- ii) The following categories of candidates shall also be eligible to appear as private candidates at the Delhi Senior School Certificate Examination of the Board on the conditions laid down in these byelaws:-
 - (a) teachers serving in educational institutions affiliated to the Board, who have already qualified/passed Secondary or an equivalent examination at least two years before taking the Senior School Certificate Examination. Teacher candidates shall submit his application form alongwith a certificate by the Head of School in which they are serving duly countersigned by the Director of Education, Government of National Capital Territory of Delhi to the Regional Officer, Delhi;
 - (b) women candidates who are bonafide residents of the National Capital Territory of Delhi and have obtained minimum Grade D in at least five subjects as per the Scheme of Studies and a Qualifying Certificate issued by the Board/minimum Grade

D in the Scholastic areas as well as satisfactory Grades in Co-Scholastic areas under the Continuous and Comprehensive Evaluation scheme in the Secondary School examination conducted by the school affiliated to the Board upto Senior Secondary level and Certificate of School - Based Assessment duly signed by the Board at the Secondary School Examination conducted by the Board/School or an equivalent examination at least two years before appearing at the Senior School Certificate Examination subject to conditions mentioned in clause 17(iii); and

- (c) physically handicapped students who have obtained minimum Grade D in at least five subjects as per the Scheme of Studies and a Qualifying Certificate issued by the Board/minimum Grade D in the Scholastic areas as well as satisfactory Grades in Co-Scholastic areas under the Continuous and Comprehensive Evaluation scheme in the Secondary School examination conducted by the school affiliated to the Board upto Senior Secondary level and Certificate of School - Based Assessment duly signed by the Board at the Secondary School Examination conducted by the Board/School or its equivalent at least two years before appearing at the Senior School Certificate Examination on producing reasonable evidence of having deficiency to attend normal institutions for the purpose of studies.
 - (d) Regular candidate(s) of the previous year who have completed regular course of Studies and have been allotted roll no. for appearing at the examination but could not appear at the Annual Examination due to medical reasons except short age of attendance as laid down in the examination bye laws will also be eligible to reappear at a subsequent examination as a private candidate in the syllabus and text books as prescribed for the examination of the year in which he will reappear.
- (iii) Women/handicapped private candidates shall be required to satisfy the following additional conditions:-
- (a) that they have privately pursued the prescribed course of studies under proper guidance;
 - (b) that they are unable to join a Senior Secondary School affiliated to the Board or there are such other reasons compelling them to appear at the examination as a private candidate.

16. Persons eligible to appear as ‘Private Candidates’ at All India Senior School Certificate Examination (Class XII)

- (i) A candidate who had failed at the All India Senior School Certificate Examination of the Board will be eligible to reappear at a subsequent examination as a private candidate in the syllabus and text books as prescribed for the examination of the year in which he will reappear.
- (ii) Teachers serving in educational institutions affiliated to the Board who have obtained minimum Grade D in at least five subjects as per the Scheme of Studies and a Qualifying Certificate issued by the Board/minimum Grade D in the Scholastic areas as well as satisfactory Grades in Co-Scholastic areas under the Continuous and Comprehensive

Evaluation scheme in the Secondary School examination conducted by the school affiliated to the Board upto Senior Secondary level and Certificate of School - Based Assessment duly signed by the Board at the Secondary School Examination conducted by the Board/ School or an equivalent examination at least two years before taking the Senior School Certificate Examination. Teacher candidates shall submit his application form alongwith a certificate by the Head of School in which they are serving duly countersigned by the Director of Education of the State/Union Territory concerned to the Regional Office of the Board in which the school is situated.

- (iii) Regular candidates of the previous year who have completed regular course of studies and have been allotted roll no. for appearing at the examination but could not appear at the Annual Examination due to medical reasons except shortage of attendance as laid down in the examination bye laws will also be eligible to reappear at a subsequent examination as a private candidate in the syllabus and text books as prescribed for the examination of the year in which he will reappear.

17. Procedures for submission of Applications of Private Candidates at All India/Delhi Senior School Certificate Examination (Class XII)

- (i) A private candidate must submit to the Regional Officer of the Board within the prescribed limit an application in the form prescribed together with the prescribed fee for the examination and three copies of passport size photographs duly signed by the candidate and counter signed in the case of teacher by the authorities mentioned in Rule 1.18 (ii) (a) or 1.19 (ii) and in case of others a member of the Governing Body of the Board or Head of a School affiliated to the Board.
- (ii) If the application of a private candidate is received after the prescribed date, he shall pay late fee as prescribed.
- (iii) When a private candidate's application for admission to the examination is rejected, the examination fee including late fee if any, paid by him less Rs. 10/- or the amount as decided by the Chairman from time to time, will be refunded to him, provided that in the case of candidates whose applications have been rejected on account of the candidate's producing a false certificate or making a false statement in the application, the full amount of fee shall be forfeited.
- (iv) Private candidates shall not be allowed to offer for their examination, a subject (even if the subject is recognised for the examination) which is not being taught in an affiliated school.
- (v) Private candidates shall not be allowed to offer such subjects for the examinations which involve practical work except in case of candidates who had failed earlier and who had put in a regular course of study at an institution affiliated to the Board in the previous academic year. However, notwithstanding this condition, female candidates, may offer Home Science with practical.
- (vi) Those regular candidates who have failed to obtain promotion to class XII of the school affiliated to the Board or any other recognised Board shall not be admitted to the Senior School Certificate Examination of the Board as private candidates.
- (vii) Every year, in the beginning of the session, the Heads of School shall send to the Regional

Officer concerned, a list of female and handicapped students who have been detained in Class XI containing student's name, date of birth, the name of his father or guardian and the place of residence.

18. Rules for Change in Subject

- (i) Change of subject(s) in class XI may be allowed by the Head of the School but not later than 31st of October of that academic session.
- (ii) No candidate shall be permitted to change his subject of study after passing Class XI.
- (iii) The candidate shall not offer a subject in Class XII which he has not studied and passed in Class XI.
- (iv) Notwithstanding anything contained in the rule 26 (ii) & (iii) Chairman shall have the powers to allow a change in subject(s) to avoid undue hardship to the candidate provided such a request for change is made before 30th September.

19. Submission of Migration Certificate by Private/Teacher Candidates for All India/Delhi Senior School Certificate Examination.

The candidates who have passed the Secondary or equivalent examination from other recognised Board/University shall be required to submit Migration Certificate from the concerned Board/University along with the examination form. However, in case a Migration Certificate is not received fifteen days before the commencement of the examination, the candidature of the candidate shall be cancelled and the admit card for appearance at the examination shall not be issued to him by the Board.

2. SCHEME OF EXAMINATIONS AND PASS CRITERIA

2.1 General Conditions

- (i) The Scheme of Examinations and Pass Criteria for All India/Delhi Senior School Certificate Examination conducted by the Board, shall be as laid down from time to time.
- (ii) Class XI examination shall be conducted by the schools themselves.
- iii) The Board will conduct the external examinations at the end of Class XII.
- (iv) Class XII examination will be based on the syllabi as prescribed by the Board for Class XII from time to time.
- (v) Number of papers, duration of examination and marks for each subject/paper will be as specified in the curriculum for the year.
- (vi) The examination would be conducted in theory as well as in practicals, depending upon the nature of the subject(s) and the marks/grades allotted shall be as prescribed in the curriculum.
- (vii) Marks/grades shall be awarded for individual subjects and the aggregate marks shall not be given.

2.2 Grading

- (i)(a) Assessment of theory/practical papers in external subjects shall be in numerical scores. In addition to numerical scores, the Board shall indicate grades in the marks sheets issued to the candidates in case of subjects of external examinations. In case of internal assessment subjects, only grades shall be shown.
- (ii) Letter grades on a nine-point scale shall be used.
- (iii) The grades shall be derived from scores in case of subjects of external examination. In case of subjects of internal assessment, they shall be awarded by the schools.
- (iv) The qualifying marks in each subject of external examination shall be 33% at Senior School Certificate Examination. However, at Senior School Certificate Examination, in a subject involving practical work, a candidate must obtain 33% marks in the theory and 33% marks in the practical separately in addition to 33% marks in aggregate, in order to qualify in that subject.
- v)(a) For awarding the grades for the Senior Secondary Examination, the Board shall put all the passed students in a rank order and will award grades as follows:
 - A-1 Top 1/8th of the passed candidates
 - A-2 Next 1/8th of the passed candidates
 - B-1 Next 1/8th of the passed candidates
 - B-2 Next 1/8th of the passed candidates
 - C-1 Next 1/8th of the passed candidates
 - C-2 Next 1/8th of the passed candidates

D-1	Next 1/8th of the passed candidates
D-2	Next 1/8th of the passed candidates
E	Failed candidates

NOTES:

- (a) Minor variation in proportion of candidates to adjust ties will be made.
- (b) In case of a tie, all the students getting the same score, will get the same grade. If the number of students at a score point need to be divided into two segments, the smaller segment will go with the larger.
- (c) Method of grading will be used in subjects where the number of candidates who have passed is more than 500.
- (d) In respect of subjects where total number of candidates passing in a subject is less than 500, the grading would be adopted on the pattern of grading and distribution in other similar subjects.

2.3 Merit Certificates

- (i)(a) The Board will award Merit Certificates in each subject to the top 0.1% of candidates passing that subject, provided that they have passed the examination as per the pass criteria of the Board at the Senior School Certificate Examination.
- (ii) The number of merit certificates in a subject will be determined by rounding off the number of candidates passing the subject to the nearest multiple of thousand. If the number of candidates passing a subject is less than 500, no merit certificate will be issued.
- (iii) In the matter of a tie, if one student gets a merit certificate, all candidates getting that score will get the merit certificate.

2.4 Scheme of Examination (Senior School Certificate Examination)

- (i) The Board shall conduct examination in all subjects except General Studies, Work Experience, Physical and Health Education, which will be assessed internally by the schools.
- (ii) In all subjects examined by the Board, a student will be given one paper each carrying 100 marks for 3 hours. However, in subjects requiring practical examination, there will be a theory paper and practical examinations as required in the syllabi and courses.
- (iii) In Work Experience, General Studies and Physical and Health Education, the Schools will maintain cumulative records of student's periodical achievements and progress during the year. These records are subject to the scrutiny of the Board as and when deemed fit.
- (iv) A candidate from a recognised school who has some physical deformity or is otherwise unable to take part in Work Experience and Physical and Health Education, may be granted exemption by the Chairman on the recommendation of the Head of the institution,

supported by the medical certificate from a Medical Officer of the rank not below an Assistant Surgeon.

- (v) Private/Patrachar Vidyalaya and candidates sponsored by Adult School shall be exempted from Work Experience, General Studies and Physical and Health Education.
- (vi) A candidate may offer an additional subject which can be either a language at elective level or another elective subject as prescribed in the Scheme of Studies, subject to the conditions laid down in the Pass Criteria.

2.5 Pass Criteria (Senior School Certificate Examination)

- (i) A candidate will be eligible to get the pass certificate of the Board, if he/she gets a grade higher than E in all subjects of internal assessment unless he/she is exempted. Failing this, result of the external examination will be with held but not for a period of more than one year.
- (ii) In order to be declared as having passed the examination, a candidate shall obtain a grade higher than E (i.e. at least 33% marks) in all the five subjects of external examination in the main or at the end of the compartmental examination. The pass marks in each subject of external examination shall be 33%. In case of a subject involving practical work a candidate must obtain 33% marks in theory and 33% marks in practical separately in addition to 33% marks in aggregate in order to qualify in that subject.
- (iii) No overall division/distinction/aggregate shall be awarded.
- (iv) In respect of a candidate offering an additional subject, the following norms shall be applied:
 - (a) A language offered as an additional subject may replace a language in the event of a candidate failing in the same provided after replacement the candidate has English/Hindi as one of the languages.
 - (b) An elective subject offered as an additional subject may replace one of the elective subjects offered by the candidate. It may also replace a language provided after replacement the candidate has English/Hindi as one of the languages.
 - (c) Additional language offered at elective level may replace an elective subject provided after replacement, the number of languages offered shall not exceed two.
- (v) Candidates exempted from one or more subjects of internal examination shall be eligible for appearing in external examination and result shall be declared subject to fulfilment of other conditions laid down in the Pass Criteria.
- (vi) In order to be declared as having passed the Class XI Examination a candidate shall obtain 33% marks in all the subjects. The pass marks in each subject of examination shall be 33%. In case of subject involving practical work a candidate must obtain 33% marks in theory and 33% in practical separately in addition to 33% marks in aggregate in order to qualify in that subject.

2.6 Eligibility for Compartment in Senior School Certificate Examination

A candidate failing in one of the five subjects of external examination shall be placed in compartment in that subject provided he/she qualifies in all the subjects of internal assessment.

2.7 Compartment Examination for Senior School Certificate Examination

- (i) A candidate placed in compartment at the Senior School Certificate Examination may reappear at the compartmental examination to be held in July the same year, may avail himself/herself of Second Chance in March/April and Third Chance in July of next year. Further he/she may avail himself/herself of Fourth Chance in March/April and Fifth Chance in July of the subsequent next year. The candidate will be declared 'PASS' provided he/she qualifies the compartmental subjects in which he/she had failed. Syllabi and Courses shall be the same as applicable for the candidates of full subjects appearing at the examination in the year concerned.
- (ii) A candidate who fails to appear or fails at one or all the chances of compartment at the Senior School Certificate Examination shall be treated to have failed in the examination and shall be required to reappear in all the subjects at the subsequent annual examination of the Board as per syllabi and courses laid down for the examination concerned in order to pass the examination. The candidates' practical marks/internal assessment marks obtained in the Main examination will be carried over till the fifth chance compartmental examination. The candidate shall have the option to appear at the practical examination in the subjects involving practical or retain their previous marks in one more annual examination after the Fifth Chance Compartment.
- (iii) A candidate placed in compartment shall be allowed to appear at the subsequent five chances of Compartment only in those subjects in which he/she has been placed in compartment.
- (iv) For subjects involving practical work, in case the candidate has passed in practical at the main examination he/she shall appear only in theory part and previous practical marks will be carried forward and accounted for. In case a candidate has not qualified/failed in practical/internal assessment he/she shall have to appear in theory and practical/internal assessment both irrespective of the fact that s/he has already qualified/cleared the theory examination.

2.8 Retention of Practical Marks in Respect of Failure candidates for Senior School Certificate Examinations

- (i) A candidate who has failed at the Senior School Certificate Examination in the first attempt shall be required to re-appear in all the subjects at the subsequent annual examination of the Board. He/she shall appear only in theory part and his/her previous practical marks will be carried forward and accounted for if he/she has passed in practical. In case a candidate has failed in practical he/she shall have to appear in theory and practical both. If he/she fails to pass the examination in three consecutive years, after the first attempt, he/she shall have to reappear in all the subjects including practical.

2.9 Additional Subject(s)

- (i) A candidate who has passed the Senior School Certificate Examination of the Board may offer an additional subject as a private candidate provided the additional subject is provided in the Scheme of Studies and is offered within six years of passing the examination of the Board. No exemption from time limit will be given after six years. Facility to appear in additional subject will be available at the annual examination only.
- (ii) However, candidates appearing in six subjects at the Senior School Certificate Examination having been declared 'Pass' by virtue of securing pass marks in five subjects as per Rule 40.1(iv) may appear in the failing subject at the Compartment Examination to be held in July the same year.

2.10 Improvement of performance - Senior School Certificate Examination

- (i) A candidate who has passed an examination of the Board may reappear for improvement of performance in the succeeding year only; however, a candidate who has passed an examination of the Board under Vocational Scheme may reappear for improvement of performance in the main examination in the succeeding year or the following year provided they have not pursued higher studies in the mean time. They will appear as private candidates. Those reappearing for the whole examination may, however, appear as regular candidates also if admitted by the school as regular students. The candidate (s) appearing for improvement of performance can appear in the subject (s) only in which they have been declared pass and not in the subject in which they have been declared fail.
- (ii) For subjects involving practical work, in case the candidate has passed in practical at the main examination, he/she shall be allowed to appear in theory part only and marks in practical obtained at the main examination shall be carried forward and accounted for. In case a candidate has failed in practical, he/she shall have to appear in theory and practical both irrespective of the fact that he/she has already cleared the theory examination.
- (iii) Candidates who appear for improvement of performance will be issued only Statement of Marks reflecting the marks of the improvement examination.
- (iv) A candidate appearing for Improvement of Performance in one or more subjects can not appear for additional subject simultaneously.

Examination Bye-Laws

Rest of conditions for appearing in the examination shall be as laid down in the Examination bye laws of the Board from time to time.

3. SCHEME OF STUDIES

3.1 Academic Stream

The learning areas will include:

I&II Two Languages (Core/Elective) out of

Hindi, English, Assamese, Bengali, Gujrati, Kashmiri, Kannada, Marathi, Malyalam, Manipuri, Oriya, Punjabi, Sindhi, Tamil, Telugu, Urdu, Sanskrit, Arabic, Persian, Limboo, Lepcha, Bhutia, Mizo, Tangkhul, Bodo, Nepali, Tibetan, French, German, Portuguese, Russian and Spanish.

- Notes:**
1. Out of the languages, one shall be English or Hindi, both English and Hindi can also be offered simultaneously.
 2. The languages may be offered either at Core/Elective level. The same language, however cannot be offered both at the Core level and Elective level.
 3. A candidate has the freedom to offer, in lieu of one of the two languages above, any other elective subject provided under III below.

Note: English can be offered at any of the three levels given below:

1. English Core
2. English Elective
3. Functional English

III to V. Three Electives out of the following:

Mathematics, Physics, Chemistry, Biology, Biotechnology, Engineering Graphics, Economics, Political Science, History, Geography, Business Studies, Accountancy, Home Science, Fine Arts, Agriculture, Computer Science/Informatics Practices, Multimedia and Web Technology, Sociology, Psychology, Philosophy, Physical Education, Music and Dance, Entrepreneurship, Fashion Studies, Creative Writing and Translation Studies and Mass Media Studies. (In this regard please also refer to notes under 3.2.1. and 3.2.2 below).

- Note:** 1. The candidate shall opt either for Computer Science or Informatics Practices. However along with either of this, they can opt for Multimedia and Web technology. Thus, a Candidate can opt for maximum of two IT based Courses.

VI. General Studies

VII. Work Experience

VIII. Physical and Health Education

Additional Subject:

A candidate can also offer an additional elective which may either be a language at elective level (out of those mentioned above) or, any other elective subject. In this respect please also refer to clause 2.5 (iv) under chapter 2.

While transacting the Curriculum due emphasis should be laid on National Identity and Value Education. Schools are expected to draw their own programmes in this area in accordance with the guidelines contained in the brochure 'National Integration through Schools' published by the Board, Likewise, programmes in General Studies, Work Experience and Physical and Health Education be planned in accordance with the guidelines brought out by the Board.

3.2 List of Vocational Subjects

Sl. No.	Name of the Course	Subject Code
1.	Office Secretary ship	
	a Office Practice and Secretary ship	604
	b Secretariat Practice & Accounting	605
	c Office Communication	606
2.	Stenography & Computer Application	
	a Typewriting (English)	607
	b Stenography (English)	608
	c Typewriting (Hindi)	609
	d Stenography (Hindi)	610
3.	Accountancy and Auditing	
	a Financial Accounting	611
	b Elements of Cost Accountancy & Auditing	612
	Additional Subject Optional	
	1. Store Accounting	
	2. Typewriting	
4.	Marketing and Salesmanship	
	a Marketing	613
	b Salesmanship	614
	c Consumer Behaviour and Protection	615

5.	Banking a Cash Management and House Keeping b Lending Operations c Management of Bank Office	619 620 621
6.	Electrical Technology a Engineering Science b Electrical Machines c Electrical Appliances Additional Subject Optional 1. Applied Physics 2. Mechanical Engineering	622 623 624 625 626
7.	Automobile Technology a Auto Engineering b Auto Shop Repair and Practice Additional Subject Optional 1. Applied Physics 2. Civil Engineering	627 628 625 629
8.	Structure and Fabrication Technology a Fabrication Technology - II b Fabrication Technology - III Additional Subject Optional 1. Applied Physics 2. Civil Engineering	630 631 625 629
9.	Air Conditioning and Refrigeration Technology a Air Conditioning and Refrigeration - III b Air Conditioning and Refrigeration - IV Additional Subject Optional 1. Applied Physics 2. Civil Engineering	632 633 625 629

10.	Electronics Technology	
	A Electronic Devices and Circuits	634
	B Radio Engineering and Audio Systems	635
	C Television and Video Systems	636
	Additional Subject Optional	
	1. Electrical Engineering	637
	2. Civil Engineering	629
11.	Dairying	
	A Milk and Milk Products	639
	B Milk Production, Transport and Milk Cooperatives	640
	C Dairy Plant Instrumentation	641
12.	Horticulture	
	A Vegetable Culture	642
	B Floriculture	643
	C Post Harvest Technology and Preservation	644
13.	Health Care and Beauty Culture	
	A Beauty Therapy and Hair Designing - II	654
	B Cosmetic Chemistry	655
	C Yoga Anatomy and Physiology	656
14.	Ophthalmic Techniques	
	A Biology (Ophthalmic)	657
	B Optics	658
	C Ophthalmic Techniques	659
15.	Medical Laboratory Technology	
	A Laboratory Machine (Clinical Pathology, Hematology & Histopathology)	660
	B Clinical Biochemistry	661
	C Microbiology	662

16.	Auxiliary Nursing & Midwifery	
	A Fundamentals of Nursing II	663
	B Community Nursing II	664
	C Maternity & Child Health Nursing II	665
17.	X-Ray Technician	
	a Radiation Physics	666
	b Radiography I (General)	667
	c Radiography II (Special investigation, imaging and Radiography)	668
18.	Food Service & Management	
	a Advanced Food Preparation	675
	b Meal Planning & Service	676
	c Establishment & Management of Food Service Unit	677
19.	Fashion Design & Clothing Construction	
	a Textile Science	684
	b Designing & Pattern Making	685
	c Clothing Construction	686
20.	Textile Design Dyeing & Printing	
	a Textile Science	684
	b Basic Design	687
	c Dyeing & Printing	688
21.	Hotel Management and Catering Technology	
	a Food Preparation-II	690
	b Accommodation Services	691
	c Food & Beverage Service-II	692
22.	Tourism and Travel	
	a India -The Tourist Destination	693
	b Travel Trade Management	694
	c Tourism Management and Man-Power Planning	695

23.	Bakery and Confectionery		
	a. Food Service & Hygiene	696	
	b. Bakery Science	697	
	c. Confectionery	698	
24.	IT Application		
	a. I T System	699	
	b. Business Data Processing	700	
	c. DTP, CAD and Multimedia	701	
25.	Library Management		
	a. Library Admn. & Management	702	
	b. Classification and Cataloguing	703	
	c. Reference Service	704	
26.	Life Insurance		
	a. Principles Practice of Life Insurance	705	
	b. Computer & Life Insurance Administration	706	
27.	Transportation System & Management	712	
28.	Poultry Farming		
	a. Poultry Nutrition & Physiology	716	
	b. Poultry Products Technology	717	
	c. Poultry Diseases & their control	718	
29.	FINANCIAL MARKET MANAGEMENT		
	a. Accounting for Business - 1	Class XI	719
	b. Introduction to Financial Market - 1	Class XI	720
	c. Computer Applications in Financial Markets	Class XI	721
	d. Accounting for Business - 2	Class XII	722
	e. Introduction to Financial Markets - 2	Class XII	723
	f. Business Process Outsourcing Skills	Class XII	724

30.	HEALTHCARE SCIENCES		
	a. Anatomy & Physiology	Class XI	725
	b. Healthcare Delivery System, Hospital Organization And Services and Medical Equipments and Technologies	Class XI	726
	c. Food Nutrition and Dietetics	Class XI	727
	d. Health Education, Communication, Public Relations and Public Health	Class XII	728
	e. Basic concepts of Health and Disease and Medical Terminology	Class XII	729
	f. First Aid & Emergency Medical Care	Class XII	730
31.	FOOD PRODUCTION		
	a. Food Production I	Class XI	734
	b. Food Production II	Class XI	735
	c. Food Production III	Class XII	734
	d. Food Production IV	Class XII	735
32.	FOOD AND BEVERAGE SERVICES		
	a. Food Service I	Class XI	736
	b. Beverage Service I	Class XI	737
	c. Food Service II	Class XII	736
	d. Beverage Service II	Class XII	737
33.	MASS MEDIA STUDIES AND MEDIA PRODUCTION		
	a. Understanding the Evolution and Form of Mass Media-I	Class XI	738
	b. The Creative and Commercial Process in Mass Media - I	Class XI	739
	b. The Creative and Commercial Process in Mass Media - II	Class XII	738
	c. The Creative and Commercial Process in Mass Media - II	Class XII	739
34.	a. Geo Spatial Technology		740

3.2.1 Bridges between Vocational and Academic Streams

Bridges between Commerce-based vocational courses/packages and the subjects pertaining to different disciplines under the Academic Stream have also been provided. Accordingly, Business Studies, Accountancy and other subjects can be combined, subject to meeting the obligations required under the prescribed scheme of studies, with the following areas from the commerce based Vocational Courses:

1. Typewriting in English (code no. 607)
2. Stenography in English (code no. 608)
3. Typewriting in Hindi (code no. 609)
4. Stenography in Hindi (code no. 610)
5. Marketing (code no. 613)
6. Consumer Behaviour and Protection (code no. 615)
7. Storekeeping (code no. 617)
8. Store Accounting (code no. 618)

3.2.2 These electives can be offered along with Business Studies, Accountancy and other subject to the following stipulations:

- (i) Not more than two electives from the above list be offered.
- (ii) These papers be not combined with the electives related to similar disciplines under the academic stream in order to avoid duplication e.g. Store Accounting (code no. 618) can not be combined with Accountancy (code no. 055)
- (iii) If Stenography in Hindi or English is offered, it is obligatory to offer Hindi Typewriting or English Typewriting respectively as the case may be to make the combinations more meaningful. English Stenography, however, cannot be combined with Hindi Typewriting or corollarily Hindi Stenography with English Typewriting.

3.3 Instructional Time:

Per Week of Teaching Time

<i>Subject</i>	<i>Suggestive Periods</i>
Language I	7
Language II	7
Elective I	8

Elective II	or Vocational Course	8
Elective III		8
General Studies/General Foundation Course (GFC)		3
Work Experience (Not applicable to Vocational Stream)		2+2*
Physical & Health Education		2

* Time expected to spend outside school hours

While designing the courses it has been presumed that, given margin to vacations, public holidays and other contingencies, a minimum of 30 weeks of teaching time will be available in each session for actual instructional transaction. Accordingly, the distribution of periods over units and sub-units has been made which is only suggestive in character. The schools, keeping the overall number of periods in each subject area the same may assign more or less number of periods to individual units according to their relative importance if throughout necessary. The distribution of marks over each unit (unitwise weightage) is prescriptive, hence shall remain unchanged.

- Notes:**
1. Schools are expected to give adequate time for Community Service outside the school hours, the minimum being equivalent of two periods a week.
 2. The Vocational Group candidates should make use of the time allotted for Work Experience for on the job training, if so required.

3.4 Medium of Instruction

The medium of instruction in general in all the schools affiliated with the board shall either be English or Hindi.

3.5 Special Adult Literacy Drive (SALD)

In pursuance of the objects of the National Literacy Mission, Government of India, a Special Adult Literacy Programme has been taken up by Board from the academic session 1991-92 beginning with classes IX & XI as a special measure to help remove illiteracy, through massive involvement of students. This has been termed as SALD. The Adult Literacy Drive has been made an essential component of Work Experience. Framework of SALD is given at Appendix 'A'. Since this activity has to be taken up by all the schools on a compulsory basis, their attention is invited, among other things, to clauses 2 and 3 of the Framework.

PART II
COURSES OF STUDIES

1. ENGLISH (Elective) Code No: 001

Classes XI-XII

Background

The course is intended to give students a high level of competence in English with an emphasis on the study of literary texts and will provide extensive exposure to a variety of rich texts of world literature as well as to Indian writings in English, including classics, and develop sensitivity to the creative and imaginative uses of English and give them a taste for reading with delight and discernment. The course will be pitched at a level which the students may find challenging.

The course is primarily designed to equip the students to pursue higher studies in English literature and English language at the college level and prepare students to become teachers of English.

Objectives

The general objectives at this stage are:

- to provide extensive exposure to a variety of writings in English including some classics.
- to develop sensitivity to literary and creative uses of language.
- to further expand the learners' vocabulary resources through the use of dictionary, thesaurus and encyclopaedia.
- to develop a taste for reading with discernment and delight.
- to initiate the study of formal English grammar and elementary linguistics and phonetics.
- to enable learners to translate texts from mother tongue into English and vice versa.
- to critically examine a text and comment on different aspects of it.

At the end of this stage the Elective Course would ensure that the learner

- grasps the global meaning of the text, its gist and understands how its theme and sub-theme relate.
- relates the details to the message in it; for example, how the details support a generalization or the conclusion either by classification or by contrast and comparison.
- comprehends details, locates and identifies facts, arguments, logical relationships, generalization, conclusions, etc.
- draws inferences, supplies missing details, predicts outcomes, grasps the significance of particular details and interprets what he/she reads.
- assesses the attitude and bias of the author.
- infers the meanings of words and phrases from the context; differentiates between apparent synonyms and appreciates the nuances of words.
- appreciates stylistic nuances, the lexical structure, its literal and figurative use and analyses a variety of texts.

- identifies different styles of writing like humorous, satirical, contemplative, ironical and burlesque.
- does text-based writing (writing in response to questions or tasks based on prescribed as well as ‘unseen’ texts).
- develops the advanced skills of reasoning, making inferences, judgements, etc.
- develops familiarity with the poetic uses of language including features of language through which artistic effect is achieved.
- to develop sensitivity to the literary and creative uses of language.
- to further expand the learners’ vocabulary resources through the use of dictionary, thesaurus and encyclopaedia.
- to develop a taste for reading with discernment and delight.
- to initiate the study of formal English grammar and elementary linguistics and phonetics.
- to enable learners to translate texts from mother tongue into English and vice versa.
- to critically examine a text and comment on different aspects of it.

At the end of this stage the Elective Course would ensure that the learner

- grasps the global meaning of the text, its gist and understands how its theme and sub-theme relate.
- relates the details to the message in it; for example, how the details support a generalization or the conclusion either by classification or by contrast and comparison.
- comprehends details, locates and identifies facts, arguments, logical relationships, generalizations, conclusions, etc.
- draws inferences, supplies missing details, predicts outcomes, grasps the significance of particular details and interprets what he/she reads.
- assesses the attitude and bias of the author.
- infers the meanings of words and phrases from the context; differentiates between apparent synonyms and appreciates the nuances of words.
- appreciates stylistic nuances, the lexical structure, its literal and figurative use and analyses a variety of texts.
- identifies different styles of writing like humorous, satirical, contemplative, ironical and burlesque.
- does text-based writing (writing in response to questions or tasks based on prescribed as well as ‘unseen’ texts).
- develops the advanced skills of reasoning, making inferences, judgements, etc.
- develops familiarity with the poetic uses of language including features of language through which artistic effect is achieved.

Methods and Techniques

The techniques used for teaching should promote habits of self-learning and reduce dependence on the teacher. The multi-skill, learner-centred, activity based approach already recommended for the previous stages of education, is still in place, though it will be used in such a way that silent reading of prescribed/selected texts for comprehension will receive greater focus as one of the activities. Learners will be trained to read independently and intelligently, interacting actively with texts and other reference materials (dictionary, thesaurus, encyclopaedia, etc.) where necessary. Some pre-reading activity will generally be required, and course books should suggest those. The reading of texts should be followed by post reading activities. It is important to remember that every text can generate different readings. Students should be encouraged to interpret texts in different ways, present their views of critics on a literary text and express their own reactions to them. Some projects may be assigned to students from time to time. For instance, students may be asked to put together a few literary pieces on a given theme from English as well as regional literatures.

Class XI

One Paper

3 Hours

Marks 100

Unitwise Weightage

	Unit	Marks
1.	Reading an unseen passage and a poem	20
2.	Writing	20
3.	Seminar	10
4.	Text for detailed study	30
5.	Drama	10
6.	Fiction	10

	Marks	Periods
1. Reading an unseen passage and a poem	20	35
(a) Literary or discursive passage of about 500-600 words	12	
(b) A poem of about 15 lines	08	
2. Writing	20	35
(a) To write an essay on an argumentative/discursive/reflective/or descriptive topic (150 words)	10	
(b) To write a composition such as an article, a report, a speech (150 words)	10	
3. Seminar	10	
<ul style="list-style-type: none"> ● Presentation of a book review, a play, a short story, a novel, novella (tale, fable, parable) to be followed by a question answer session ● Poetry reading to be followed by interpretative tasks based on cloze reading and literary analysis of the text. ● Critical review of a film or a play ● Conducting a theatre workshop to be followed by a discussion 		25
Note: The above activities would develop presentation skills, analytical skills, spoken skills and literary criticism.		
4. Text for detailed study	30	75
Prose	20	
(a) Two passages for comprehension with short question answers testing deeper interpretation and drawing inferences (04 × 2)	08	
(b) Two questions for testing global comprehension (Any One to be answered in 100 words)	06	
(c) Two short answer type questions testing comprehension to be		

	answered in a paragraph of about 30-40 words each	06	
	Poetry	10	
	(a) One extract from the prescribed poems for comprehension and literary interpretation	04	
	(b) One out of two questions on the prescribed poems for appreciation to be answered in 100 words	06	
5.	Drama - Arms and the Man	10	20
	(a) One out of two questions to be answered in about 150-200 words to test the evaluation of characters, events and episodes.		
6.	Fiction	10	20
	(a) One question to be answered in about 150 words for the analysis of characters, events, episodes and interpersonal relationships.	06	
	(b) Two out of three short answer type questions to be answered in about 30-40 words on content, events and episodes. (2×2)	04	

Books prescribed

1. **Text book: Woven words** published by NCERT
2. **Fiction: The Old Man and The Sea** Novel (unabridged) by E. Hemingway
3. **Drama: Arms and the Man** – Bernard Shaw

Class XII

One Paper

3 Hours

Marks: 100

Unitwise Weightage

	Units	Marks
1.	Reading an unseen passage and poem	20
2.	Writing	20
3.	Applied Grammar	10
4.	Texts for detailed study	40
5.	Fiction	10

		Marks	Periods
1.	Reading an unseen passage and poem	20	35
	(a) One literary or discursive passage of about 500-600 words followed by short questions	12	
	(b) A poem of about 15 lines followed by short questions to test		

	interpretation and appreciation	8	
2.	Writing	20	30
	(a) To write an essay on argumentative/discursive topic (150-200 words)	10	
	(b) To write a composition such as an article, report, speech (150-200 words)	10	
3.	Applied Grammar	10	10
	(a) Editing and error correction of words and sentences	05	
	(b) Changing the narration of a given input	05	
4.	Texts for detailed study	40	100
	(a) Two passages or extracts followed by short answer type questions for comprehension, interpretation, drawing inferences (4×2)	08	
	(b) Two out of three questions to be answered in 100 words each testing global comprehension (6+6)	12	
	(c) Five out of six questions to be answered in about 60 words each testing comprehension, characterisation, interpretation (3+3)	4 x 5 = 20	
5.	Fiction	10	30
	(a) One out of two questions to be answered in about 60 words and/or each seeking comments, interpretation	04	
	(b) One question in about 100 words to test evaluation and appreciation of characters, events, episodes and interpersonal relationships	06	

Books prescribed

1. *Kaleidoscope- Text book published by NCERT*

2. *Fiction- Tiger for Malgudi*

or

The Financial Expert by R. K. Narayan (Novel)

2. FUNCTIONAL ENGLISH (Code No. 101)

Aims and Objectives of the Functional English Course

- to enable the learner to acquire competence in different linguistic functions
- to reinforce the various subskills related to reading, writing, listening and speaking.

The Approach to Functional English Curriculum

- A skill based communicative approach is recommended in Functional English with graded texts followed by learner centred activities.
- It is recommended that teachers consciously take a back seat, playing the role of a manager, coordinator and facilitator.

Language Skills and their Objectives

Approach to Reading

- The course aims at introducing variety in text type rather than having short stories and prose pieces. The emphasis will have to be to enlarge the vocabulary through word building skills and to impart training in reading for specific purposes.

Specific Objectives of Reading

To develop specific study skills :

- to refer to dictionaries, encyclopedia, thesaurus and academic reference material
- to select and extract relevant information, using reading skills of skimming and scanning,
- to understand the writer's attitude and bias.
- to comprehend the difference between what is said and what is implied.
- to understand the language of propaganda and persuasion.
- to differentiate between claims and realities, facts and opinions.
- to form business opinions on the basis of latest trends available.
- to comprehend technical language as required in computer related fields.
- to arrive at personal conclusion and comment on a given text specifically
 - to develop the ability to be original and creative in interpreting opinion
 - to develop the ability to be logically persuasive in defending one's opinion.

To develop literary skills as enumerated below :

- to personally respond to literary texts

- to appreciate and analyze special features of languages that differentiate literary texts from non-literary ones
- to explore and evaluate features of character, plot, setting etc.
- to understand and appreciate the oral, mobile and visual elements of drama
- to identify the elements of style such as humour, pathos, satire and irony etc.

Speaking and Listening

- Speaking needs a very strong emphasis and is an important objective leading to professional competence. Hence testing of oral skills must be made an important component of the overall testing pattern. To this end, speaking & listening skills are overtly built into the material to guide the teachers in actualization of the skills.

Specific Objectives of Listening and Speaking or Conversation Skills (Aural/Oral)

- to listen to lectures and talks and to be able to extract relevant and useful information for a specific purpose.
- to listen to news bulletins and to develop the ability to discuss informally on a wide ranging issues like current national and international affairs, sports, business etc.
- to respond in interviews and to participate in formal group discussions.
- to make enquiries meaningfully and adequately and to respond to enquiries for the purpose of travelling within the country and abroad.
- to listen to business news and to be able to extract relevant important information.
- to develop the art of formal public speaking.

Writing Skills

- The course for two years has been graded in such a way that it leads the students towards acquiring advanced writing skills through integrated tasks that move from less linguistically challenging to more challenging ones. It has been planned on the premise that sub skills of writing should be taught in a context and more emphasis should be laid on teaching the process of writing.

Specific Objectives of Writing

- to write letters to friends, pen friends, relatives etc.
- to write business letters and official ones.
- to send telegrams, faxes, e-mails.
- to open accounts in post offices and banks.
- to fill in railway reservation slips.
- to write on various issues to institutions seeking relevant information, lodge complaints, express thanks or tender apology.
- to write applications, fill in application forms, prepare a personal bio-data for admission into colleges, universities, entrance tests and jobs.

- to write informal reports as part of personal letters on functions, programmes and activities held in school (morning assembly, annual day, sports day etc.)
- to write formal reports for school magazines or in local newspapers on the above events or occasions.
- to write presentation of opinions, facts, arguments in the form of set speeches for debates.
- to present papers for taking part in symposia.
- to take down notes from talks and lectures and make notes from various resources for the purpose of developing the extracted ideas into sustained pieces of writing.
- to write examination answers according to the requirement of various subjects.

CLASS XI

One Paper

3 Hours

Marks: 100

Unitwise Weightage

Unit	Area of Learning	Marks
1.	Advanced Reading Skills (Unseen passages two)	20
2.	Effective Writing Skills	20
3.	Applied Grammar	15
4.	Literature	25
5.	Conversation Skills (Listening + Speaking) (5+5)	10
6.	Reading Project	10

Formative and Summative assessment to be included in all skills.

SECTION A

ADVANCED READING SKILLS

20 Marks 60 Periods

Two unseen passages (including poems) with a variety of questions including 04 marks for vocabulary such as word formation and inferring meaning. The total no. of words of the 2 passages should be between 650-1000 words.

1. 350-500 words in length-8 marks (for note-making and summarising) **08**
2. 300-500 words in length-12 marks (04 marks for vocabulary and 08 marks for reading comprehension) **12**

The passages or poems could be of any of the following types

- a) Factual passages e.g. instructions, descriptions, reports
- b) Discursive passages involving opinion e.g. argumentative, reflective persuasive etc.
- c) Literary texts e.g. poems, extracts from fiction, biography, autobiography, travelogue etc.

In the case of a poem, the text may be shorter than 200 words.

SECTION B

EFFECTIVE WRITING SKILLS

20 Marks 50 Periods

THREE writing tasks as indicated below:

3. **One out of two** short writing tasks such as composing messages, notices, e-mails and factual description of people, arguing for or against a topic (50-80 words) **05**

Note: Though e-mail is included as one of the writing tasks, it is suggested that it may be tested as a part of formative assessment.

4. Writing **one** out of two of the following kinds of letters on the basis of given verbal or visual input: **07**
- a) Official letter for making inquiries, suggesting changes/registering complaints, asking for & giving information, placing orders and sending replies (80-100 words)
 - b) Letters to the editor on various social, national and international issues. (120-150 words)
5. **One** out of two long and sustained writing tasks such as writing a speech or writing an article based on a verbal or a visual input (150-200 words). **08**

SECTION C

APPLIED GRAMMAR

15 Marks 30 Periods

A variety of questions may be asked to test grammar items in context (not as isolated sentences). Though only modals, determiners, voice and tense forms are being dealt with in Class XI, other grammar items such as prepositions, verb forms, connectors which have been learnt earlier would also be included.

6. Drafting questions/questionnaires based on given input **4**
7. Composing a dialogue based on the given input **4**
8. Recognizing consonant and vowel values in pronunciation, stress and intonation **3**
9. Correction of errors in sentences **4**

SECTION D

LITERATURE

25 Marks 50 Periods

In the Literature Reader, questions will be asked to test local and global comprehension involving interpretative, inferential, evaluative and extrapolatory skills.

10. **One** out of two extracts from different poems from the Literature Reader, each followed by two or three questions to test Local and Global comprehension of ideas and language used in the text. **3**
11. **Two** out of three short answer questions based on different poems to test theme, setting and literary devices. They may or may not be based on extracts. (80-100 words) **4**
12. **One** out of two questions on the play from the *Literature Reader* to test comprehension of characters, actions and plot (80-100 words). An extract may or may not be used. **5**
13. **Two** out of three short answer questions based on different prose texts From the *Literature Reader* to test global comprehension, usage, lexis and meaning (80-100 words) **6**
14. **One** out of two extended questions based on one of the prose texts in the *Literature Reader* to test global comprehension and for extrapolation beyond the text (100-125 words) **7**

Prescribed Books

1. *Language Skills book* - Functional English published by Central Board of Secondary Education, Delhi.
2. *Language Reader* - Functional English published by Central Board of Secondary Education, Delhi.

Conversation Skills

10 Marks 30 Periods

(Listening and Speaking)

Conversation Skills will be tested both as part of Formative & Summative Assessment. Out of the 10 marks allotted for Conversation, 05 marks may be used for testing listening and 05 marks for testing speaking. The Conversation Skills Assessment Scale may be used for evaluation.

Listening

The examiner will read aloud either a passage on a relevant theme or a short story. The passage may be factual or discursive. The length of the passage should be around 350 words. The examinees are expected to complete the listening comprehension tasks given in a separate sheet while listening to the teacher. The tasks set may be gap-filling, multiple choice, true or false or short answer questions. There may be ten different questions for half a mark each.

Speaking

Speaking shall be tested either through narration using a sequence of pictures or through description of a picture of people or places. It may also require speaking on a given topic involving a personal experience.

NOTE :-

- The duration of the speaking test should not be less than 5 minutes.
- At the start of the examination the examiner will give the candidate some time to prepare for the task.
- Students can be asked to relate something from their personal experience such as a funny happening, the theme of a book, story of a movie seen recently etc.
- Once the candidate has started speaking, the examiner should intervene as little as possible.

Conversation Skills Assessment Scale

Listening	Speaking
The learner	The learner;
1. Has general ability to understand words and phrases in a familiar context but cannot follow connected speech;	1. shows ability to use only isolated words and phrases but cannot operate on connected speech level;
2. Has ability to follow short connected utterances in a familiar context;	2. in familiar situations, uses only short connected utterances with limited accuracy;

- | | |
|--|---|
| <ol style="list-style-type: none"> 3. Has ability to understand explicitly stated information in both familiar and unfamiliar contexts; 4. Understands a range of longer spoken texts with reasonable accuracy, and is able to draw inferences; 5. Shows ability to interpret complex discourse in terms of points of view; adapts listening strategies to suit purposes. | <ol style="list-style-type: none"> 3. shows ability to use more complex utterances with some fluency in longer discourse; still makes some errors which impede communication; 4. organises and presents thoughts in a reasonably logical and fluent manner in unfamiliar situations; makes errors which do not interfere with communication; 5. can spontaneously adapt style appropriate to purpose and audience; makes only negligible errors. |
|--|---|

Reading Project

10 Marks

Inculcating good reading habits in children has always been a concern for all stakeholders in education. The purpose is to create independent thinking individuals with the ability to not only create their own knowledge but also critically interpret, analyse and evaluate it with objectivity and fairness. This will also help students in learning and acquiring better language skills.

Creating learners for the 21st century involves making them independent learners who can 'learn, unlearn and relearn' and if our children are in the habit of reading they will learn to reinvent themselves and deal with the many challenges that lie ahead of them.

Reading is not merely decoding information or pronouncing words correctly, it is an interactive dialogue between the author and the reader in which the reader and author share their experiences and knowledge with each other which helps them to understand the text and impart meaning to the text other than what the author himself may have implied. Good readers are critical readers with an ability to arrive at a deeper understanding of not only the world presented in the book but also of the real world around them. They not only recall what they read but comprehend it too. Their critical reading and understanding of the text helps them create new understanding, solve problems, infer and make connections to other texts and experiences. Reading does not mean reading for leisure only but also for information, analysis and synthesis of knowledge. The child may be encouraged to read on topics as diverse as science and technology, politics and history. This will improve his/her critical thinking skills and also help in improving his/her concentration.

Reading any text should be done with the purpose of:-

1. reading silently at varying speeds depending on the purpose of reading:
2. adopting different strategies for different types of texts, both literary and non-literary:
3. recognising the organisation of a text:
4. identifying the main points of a text;
5. understanding relations between different parts of a text through lexical and grammatical cohesion devices.
6. anticipating and predicting what will come next.

7. deducing the meaning of unfamiliar lexical items in a given context:
8. consulting a dictionary to obtain information on the meaning and use of lexical items:
9. analysing, interpreting, inferring (and evaluating) the ideas in the text:
10. selecting and extracting from text information required for a specific purpose.
11. retrieving and synthesising information from a range of reference material using study skills such as skimming and scanning:
12. interpreting texts by relating them to other material on the same theme (and to their own experience and knowledge): and
13. reading extensively on their own for pleasure.

A good reader is most often an independent learner and consequently an independent thinker capable of taking his/her own decisions in life rationally. Such a learner will most assuredly also be capable of critical thinking.

Reading a book should lead to creative and individual response to the author's ideas presented in the book in the form of:-

- short review
 - dramatisation of the story
 - commentary on the characters
 - critical evaluation of the plot, story line and characters
 - comparing and contrasting the characters within the story and with other characters in stories by the same author or by the other authors
 - extrapolating about the story's ending or life of characters after the story ends
 - defending characters' actions in the story.
 - making an audio story out of the novel/text to be read out to younger children.
 - Interacting with the author
 - Holding a literature fest where various characters interact with each other
 - Acting like authors/poets/dramatists, to defend their works and characters.
 - Symposiums and seminars for introducing a book, an author, or a theme
 - Finding similar text in other languages, native or otherwise and looking at differences and similarities.
 - Creating graphic novels out of novels/short stories read
 - Dramatising incidents from a novel or a story
 - Creating their own stories
1. **A Reading Project of 10 marks has been introduced in class XI.**
 2. **Schools may use books of their own choice.**
 3. **Schools can vary the level but at least one book per term is to be read by every child.**

Teachers may opt for:-

- One book;
- Books by one author; or
- Books of one genre; to be read by the whole class.

The Project should lead to independent learning/ reading skills and hence the chosen book/selection should **not be taught** in class, but may be introduced through activities and be left for the students to read at their own pace. Teachers may, however, choose to assess a child's progress or success in reading the book by asking for verbal or written progress reports, looking at the diary entries of students, engaging in a discussion about the book, giving a short quiz or a worksheet about the book/ short story. The mode of intermittent assessment may be decided by the teacher as she/he sees fit.

These may be used for Formative Assessment (F1, F2, F3 and F4) only. Various modes of assessment such as conducting Reviews, Discussions, Open Houses, Exchanges, Interact with the Author, writing script for plays can be considered.

Examination Specifications

Class XII

One Paper

3 Hours

Marks : 100

Unitwise Allocation

Unit	Areas of Learning	Marks
1.	Advanced Reading Skills (Unseen Passages-two)*	20
2.	Effective Writing Skills	25
3.	Applied Grammar	20
4.	Literature	35

SECTION A

ADVANCED READING SKILLS

20 Marks 60 Periods

Two unseen passages (including poems) with a variety of questions including 04 marks for vocabulary such as word formation and inferring meaning. The total range of the 2 passages including a poem or a stanza, should be around 650-1000 words.

1. 350-500 words in length (for note-making and summarising) **08**
2. 300-500 words in length (4 marks for word attack skills) **12**

The passages or poems could be of any one of the following types

Factual passages e.g. illustrations, description, reports

Discursive passages involving opinion e.g. argumentative, persuasive

Literary passages e.g. poems, extracts from fiction, biography, autobiography, travelogue etc.

In the case of a poem, the text may be shorter than the prescribed word limit.

SECTION B

EFFECTIVE WRITING SKILLS

25 Marks 60 Periods

3. **One** out of two short writing tasks such as notices, advertisements, factual description of people arguing for or against topics, places and objects, drafting posters, accepting and declining invitations. (50-80 words) **5**
4. Writing **one** out of two letters of any of the following types based on given verbal/visual input **10**
 - a) Official letters for making inquiries, suggesting changes-registering complaints asking for and giving information, placing orders and sending replies (80-100 words)
 - b) Letters to the editor on various social, national and international issues (125-150 words)

- c) Application for a job including CV (Curriculum Vitae)/Resume
5. **One** out of two long and sustained writing task such as writing a speech, a report or writing an article based on verbal/visual input (200 words) **10**

SECTION C

APPLIED GRAMMAR

20 Marks 30 Periods

Variety of questions, as listed below may be asked, involving the application of grammar items in context (i.e. not in isolated sentences). The grammar syllabus will be sampled each year. Grammar items such as modals, determiners, voice and tense forms have been dealt with in class XI. However, other items such as prepositions, verb forms, connectors which have been learnt earlier would also be included.

- | | |
|---|---|
| 6. Reordering of words and sentences | 5 |
| 7. Composing a dialogue based on the given input | 5 |
| 8. Error correction in sentences | 5 |
| 9. Drafting questions/questionnaires based on given input | 5 |

SECTION D

LITERATURE

35 Marks 30 Periods

In the *Literature Reader*, questions will be asked to test comprehension at different levels and of different kinds local, global, interpretative, inferential, evaluative and extrapolatory.

- | | |
|--|---|
| 10. One out of two extracts from different poems from the <i>Literature Reader</i> , each followed by two or three questions to test local and global comprehension of ideas and language used in the text. | 7 |
| 11. Two out of the three short answer questions based on different poems to test theme, setting and literary devices. It may or may not be based on an extract. (80-100 words) | 8 |
| 12. One out of two questions based on the play from the <i>Literature Reader</i> to test comprehension and drawing/evaluating inferences. An extract may or may not be used (80-100 words) | 5 |
| 13. Two out of three short questions based on different prose texts from the <i>Literature Reader</i> to test global comprehension of usage & lexis and meaning (80-100 words) | 8 |
| 14. One out of two extended questions based on one of the prose texts in the <i>Literature Reader</i> to test global comprehension and for extrapolation beyond the text (100-125 words) | 7 |

Prescribed Books :

1. ***Language Skillsbook- Functional English*** published by Central Board of Secondary Education, Delhi.
2. ***Literature Reader - Functional English*** published by Central Board of Secondary Education, Delhi.

3. ENGLISH (Core)

Code No: 301

Background

Students are expected to have acquired a reasonable degree of language proficiency in English by the time they come to class XI, and the course will aim, essentially, at promoting the higher-order language skills.

For a large number of students, the higher secondary stage will be a preparation for the university, where a fairly high degree of proficiency in English may be required. But for another large group, the higher secondary stage may be a preparation for entry into the world of work. The Core Course should cater to both groups by promoting the language skills required for academic study as well as the language skills required for the workplace.

Objectives

The general objectives at this stage are:

- to listen to and comprehend live as well as recorded oral presentations on a variety of topics,
- to develop greater confidence and proficiency in the use of language skills necessary for social and academic purposes.
- to participate in group discussions/interviews, making short oral presentations on given topics.
- to perceive the overall meaning and organisation of the text (i.e., the relationships of the different “chunks” in the text to each other).
- to identify the central/main point and supporting details, etc.
- to build communicative competence in various registers of English.
- to promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities.
- to translate texts from mother tongue (s) into English and vice versa.
- to develop ability and knowledge required in order to engage in independent ~ reflection and enquiry.
- to develop the capacity to appreciate literary use of English and also use English creatively and imaginatively.

At the end of this stage learners will be able to do the following:

- read and comprehend extended texts (prescribed and non-prescribed) in the following genres: fiction, science fiction, drama, poetry, biography, autobiography, travel and sports literature, etc.
- text-based writing (i.e., writing in response to questions or tasks based on prescribed or unseen texts)
- understand and respond to lectures, speeches, etc.

- write expository/argumentative essays of 250-500 words, explaining or developing a topic, arguing a case, etc.
- write formal/informal letters and applications for different purposes.
- write items related to the workplace (minutes, memoranda, notices, summaries reports; filling up of forms, preparing CVs, e-mail messages, etc.).
- taking/making notes from reference materials, recorded talks etc.

Language Items

The Core Course should draw upon the language items suggested for classes IX-X and delve deeper into their usage and functions. Particular attention may, however, be given to the following areas of grammar:

- the uses of different tense forms for different kinds of narration (e.g. media commentaries, reports, programmes, etc.).
- the use of passive forms in scientific and innovative writings
- converting one kind of sentence/clause into a different kind of structure as well as other items to exemplify stylistic variations in different discourses
- modal auxiliaries - uses based on semantic considerations.

Methods and Techniques

The techniques used for teaching should promote habits of self-learning and reduce dependence on the teacher. In general, we recommend a multi-skill, learner-centred, activity based approach, of which there can be many variations. The core classroom activity is likely to be that of silent reading of prescribed/selected texts for comprehension, which can lead to other forms of language learning activities such as role play, dramatization, group discussion, writing, etc. although many such activities could be carried out without the preliminary use of textual material. It is important that students be trained to read independently and intelligently, interacting actively with texts, with the use of reference materials (dictionaries, thesauruses, etc.) where necessary. Some pre-reading activity will generally be required, and the course books should suggest suitable activities, leaving teachers free to devise other activities when desired. So also, the reading of texts should be followed by post reading activities. It is important to remember that every text can generate different readings. Students should be encouraged to interpret texts in different ways.

Group and pair activities can be resorted to when desired, but many useful language activities can be carried out individually.

In general, teachers should encourage students to interact actively with texts and with each other. Oral activity (group discussion, etc.) should be encouraged.

EXAMINATION SPECIFICATIONS
Class XI (ENGLISH CORE)

One paper

3 Hours

Marks: 100

Unitwise Weightage

Unit	Areas of Learning	Marks
A.	Reading Unseen Passages (Two)	20
B.	Writing	20
C.	Grammar	10
D.	Textual Questions	
	(i) Textbook	20
	(ii) Supplementary Reader	10
E.	Conversation Skills	
	(i) Listening	05
	(ii) Speaking	05
F.	(i) Reading Project	10

Formative and Summative Assessment to be followed in all skills.

SECTION - A

READING

Reading unseen Passages for Comprehension and Note-making 20 Marks 40 Periods

This section will have **three** unseen passages followed by a variety of questions. The questions will include those on vocabulary such as word formation and inferring meaning for 05 marks. The total length of the three passages shall be around 1100 words.

The passages could be any of the following three types:

- (a) Factual passages e.g. instructions, descriptions, reports.
- (b) Discursive passages e.g. argumentative, persuasive or reflective
- (c) Literary passages e.g. excerpts from biographies, novels, poems or essays of subjective type.

SUMMARY - Class XI

	Unseen Passages	No of words	Testing Areas	Marks allotted
1.	Prose	around 600	5 MCQ type questions to test local, global and inferential comprehension and 1 MCQ on vocabulary on each of the given passages/extracts/poems	5+1
2.	Poetry			5+1
3.	Prose	around 500	Note-making in an appropriate format	05
			Vocabulary (MCQ)	03

Q1 and Q2 will be two unseen texts - one from prose and the other from poetry. The total length of these two texts will be around 600 words.

Each of these extracts will be for 6 marks- five marks for local, global and inferential comprehension in the form of Multiple Choice Questions and one mark for vocabulary.

Q3 will have a prose passage of about 500 words and it will be used for note making (05 marks) and testing vocabulary (03 marks)

SECTION B

WRITING

20 Marks 40 periods

4. **One** out of two short writing tasks based on personal response to a verbal stimulus in the form a narrative or a story.
(100-150 words) **05**
5. **One** out of two compositions based on a visual and/or verbal input (in about 150-200 words). The output may be descriptive, reflective or argumentative in nature such as an article for publication in a newspaper or a school magazine, a speech or a report either from a 3rd person point of view or as recounting of an experience/incident in the writer's life. **08**
6. Writing **One** out of two letters based on given input. Letter types include (a) letter to the editor (giving suggestions or opinions on an issue of public interest) or (b) letter to the school or colleges authorities, regarding admissions, school issues, requirements / suitability of courses etc. **07**

SECTION C

GRAMMAR

10 Marks 30 Periods

Different grammatical structures in meaningful contexts will be

tested. Item types will include gap-filling, sentence-reordering, dialogue-completion and sentence-transformation. The grammar syllabus includes **determiners, tenses, clauses, modals** and voice. These grammar areas will be tested using the following test types:

- | | |
|----------------------------|-----------|
| 7. Error Correction | 04 |
| 8. Editing Task | 04 |
| 9. Reordering of sentences | 02 |

SECTION D

TEXTUAL QUESTIONS

40 Marks 100 Periods

Questions on the prescribed textbooks will test comprehension at different levels: literal, inferential and evaluative based on the following prescribed text books:

1. **Hornbill** : *Text book*, published by NCERT, New Delhi.
2. **Snapshots** : *Supplementary Reader*, published by NCERT, New Delhi.

Text Book

20 Marks

- | | |
|---|---------------|
| 10. One out of two extracts based on poetry from the text to test comprehension & appreciation using four multiple choice questions. | 04 |
| 11. Five out of six short answer questions on the lessons from poetry, prose and plays (at least 2 questions will be from poetry, 1 from play and the remaining from prose). (Upto 40 words) | 2x5=10 |
| 12. One out of two long answer type questions based on the prose text to test global comprehension and extrapolation beyond the set text / and across two texts (Expected word limit would be about 100-125 words) | 06 |

Supplementary Reader

10 Marks

- | | |
|--|--------------|
| 13. One out of two long answer type questions based on Supplementary Reader to test comprehension of theme, character and incidents. (Upto 100 words) | 04 |
| 14. Two out of three short answer questions on Supplementary Reader (upto 30 words) | 3+3=6 |

Prescribed Books

1. **Hornbill** - *Text book published by NCERT, New Delhi.*
2. **Snapshots** - *Supplementary Reader published by NCERT, New Delhi.*

Conversation Skills

10 marks

(Listening + Speaking)

Conversation Skills will be tested both as part of Formative & Summative Assessment. Out of the 10 marks allotted for Conversation, 05 marks may be used for testing listening and 05 marks for testing speaking. The Conversation Skills Assessment Scale may be used for evaluation.

Listening

The examiner will read aloud either a passage on a relevant theme or a short story. The passage may be factual or discursive. The length of the passage should be around 350 words. The examinees are expected to complete the listening comprehension tasks given in a separate sheet while listening to the teacher. The tasks set may be gap-filling, multiple choice, true or false or short answer questions. There may be ten different questions for half a mark each.

Speaking

Speaking shall be tested either through narration using a sequence of pictures or through description of a picture of people or places. It may also require speaking on a given topic involving a personal experience. Description of a picture (can be pictures of people or places)

NOTE:

- The duration of the speaking test should not be less than 5 minutes for each candidate.
- At the start of the examination the examiner will give the candidate some time to prepare for the task.
- Once the candidate has started speaking, the examiner should intervene as little as possible.
- Topics chosen should be within the personal experience of the examinee such as:
relating a funny anecdote, retelling the theme of a book read or a movie seen recently.

Conversation Skills Assessment Scale

Listening	Speaking
The learner:	The learner:
1. Has general ability to understand words and phrases in a familiar context but cannot follow connected speech;	1. shows ability to use only isolated words and phrases but cannot operate on connected speech level;
2. Has ability to follow short connected utterances in a familiar context;	2. in familiar situations, uses only short connected utterances with limited accuracy;
3. Has ability to understand explicitly stated information in both familiar and unfamiliar contexts;	3. shows ability to use more complex utterances with some fluency in longer discourse; still makes some errors which impede communication;
4. Understands a range of longer spoken texts with reasonable accuracy, and is able to draw inferences;	4. organises and presents thoughts in a reasonably logical and fluent manner in unfamiliar situations; makes errors which do not interfere with communication;
5. Shows ability to interpret complex discourse in terms of points of view; adapts listening strategies to suit purposes.	5. can spontaneously adapt style appropriate to purpose and audience; makes only negligible errors.

Reading Project

10 Marks

Inculcating good reading habits in children has always been a concern for all stakeholders in education. The purpose is to create independent thinking individuals with the ability to not only create their own knowledge but also critically interpret, analyse and evaluate it with objectivity and fairness. This will also help students in learning and acquiring better language skills.

Creating learners for the 21st century involves making them independent learners who can '*learn, unlearn and relearn*' and if our children are in the habit of reading they will learn to reinvent themselves and deal with the many challenges that lie ahead of them.

Reading is not merely decoding information or pronouncing words correctly, it is an interactive dialogue between the author and the reader in which the reader and author share their experiences and knowledge with each other which helps them to understand the text and impart meaning to the text other than what the author himself may have implied. Good readers are critical readers with an ability to arrive at a deeper understanding of not only the world presented in the book but also of the real world around them. They not only recall what they read but comprehend it too. Their critical reading and understanding of the text helps them create new understanding, solve problems, infer and make connections to other texts and experiences. Reading does not mean reading for leisure only but also for information, analysis and synthesis of knowledge. The child may be encouraged to read on topics as diverse as science and technology, politics and history. This will improve his/her critical thinking skills and also help in improving his/her concentration.

Reading any text should be done with the purpose of:-

1. reading silently at varying speeds depending on the purpose of reading:
2. adopting different strategies for different types of texts, both literary and non-literary:
3. recognising the organisation of a text:
4. identifying the main points of a text;
5. understanding relations between different parts of a text through lexical and grammatical cohesion devices.
6. anticipating and predicting what will come next.
7. deducing the meaning of unfamiliar lexical items in a given context:
8. consulting a dictionary to obtain information on the meaning and use of lexical items:
9. analysing, interpreting, inferring (and evaluating) the ideas in the text:
10. selecting and extracting from text information required for a specific purpose.
11. retrieving and synthesising information from a range of reference material using study skills such as skimming and scanning:
12. interpreting texts by relating them to other material on the same theme (and to their own experience and knowledge): and
13. reading extensively on their own for pleasure.

A good reader is most often an independent learner and consequently an independent thinker capable of taking his/her own decisions in life rationally. Such a learner will most assuredly also be capable of critical thinking.

Reading a book should lead to creative and individual response to the author's ideas presented in the book in the form of:-

- short review
 - dramatisation of the story
 - commentary on the characters
 - critical evaluation of the plot, story line and characters
 - comparing and contrasting the characters within the story and with other characters in stories by the same author or by the other authors
 - extrapolating about the story's ending or life of characters after the story ends
 - defending characters' actions in the story.
 - making an audio story out of the novel/text to be read out to younger children.
 - Interacting with the author
 - Holding a literature fest where various characters interact with each other
 - Acting like authors/poets/dramatists, to defend their works and characters.
 - Symposiums and seminars for introducing a book, an author, or a theme
 - Finding similar text in other languages, native or otherwise and looking at differences and similarities.
 - Creating graphic novels out of novels/short stories read
 - Dramatising incidents from a novel or a story
 - Creating their own stories
- 1. A Reading Project of 10 marks has been introduced in class XI.**
 - 2. Schools may use books of their own choice.**
 - 3. Schools can vary the level but at least one book per term is to be read by every child.**

Teachers may opt for:-

- One book;
- Books by one author; or
- Books of one genre; to be read by the whole class.

The Project should lead to independent learning/ reading skills and hence the chosen book/selection should **not be taught** in class, but may be introduced through activities and be left for the students to read at their own pace. Teachers may, however, choose to assess a child's progress or success in reading the book by asking for verbal or written progress reports, looking at the diary entries of

students, engaging in a discussion about the book, giving a short quiz or a worksheet about the book/ short story. The mode of intermittent assessment may be decided by the teacher as she/he sees fit.

These may be used for Formative Assessment (F1, F2, F3 and F4) only. Various modes of assessment such as conducting Reviews, Discussions, Open Houses, Exchanges, Interact with the Author, writing script for plays can be considered.

CLASS XII

One Paper

3 Hours

Marks: 100

Unitwise Weightage

	Unit/Areas of Learning	Marks
A.	Section A Reading Skills Reading unseen prose passages and note making	20
	Section B	
B.	Advanced Writing Skills	35
C.	Section C (Prescribed Books)	
	(i) Flamingo	30
	(ii) Supplementary Reader - Vistas	15

SECTION-A

Reading unseen Passages and Note-making

20 Marks 40 Periods

Two unseen passages with a variety of questions including 03 marks for vocabulary such as word formation and inferring meaning and 05 marks for note-making.

The total length of the two passages will be between 950-1200 words. The passages will include two of the following:

- Factual Passages** e.g. instructions, descriptions, reports.
- Discursive passage** involving opinion e.g. argumentative, persuasive or interpretative text.
- Literary passage** e.g. extract from fiction, drama, poetry, essay or biography

Summary - Class XII

Unseen passages	No. of words	Testing Areas	Marks Allotted
1.	600-700	Short answer type questions to test local, global and inferential comprehension, Vocabulary	09] 03] 12
2.	350-500	Note-making in an appropriate format Abstraction	05] 03] 08

A passage of about 600-700 words carrying 12 marks and another passage of about 350-500 words carrying 08 marks

- A passage to test reading comprehension. The passage can be literary, factual or discursive. The length of the passage should be between 600-700 words. **12**
- A shorter passage of 350-500 words for note-making and abstraction. **08**

SECTION B

Advanced Writing Skills	35 Marks	70 Periods
3. One out of two short compositions of not more than 50 words each e.g. advertisement and notices, designing or drafting posters, writing formal and informal invitations and replies.	5	
4. A report or a factual description based on verbal input provided (one out of two) (100-125 words)	10	
5. Writing one out of two letters based on verbal input. Letter types include: (a) business or official letters (for making enquiries, registering complaints, asking for and giving information, placing orders and sending replies): (b) letters to the editor (giving suggestions on an issue) (c) application for a job	10	
6. One out of two compositions based on visual and/or verbal input (150-200 words). Output may be descriptive or argumentative in nature such as an article, or a speech.	10	

SECTION C

Text Books	45 Marks	100 Periods
<i>Prescribed Books:</i>		
<i>Flamingo</i>	30	
7. One out of two extracts based on poetry from the text to test comprehension and appreciation	4	
8. Three out of four short questions from the poetry section to test local and global comprehension of text.	6	
9. Five short answer questions based on the lessons from prescribed text. (2x5)	10	
10. One out of two long answer type questions based on the text to test global comprehension and extrapolation beyond the set text. (Expected word limit about 125-150 words each)	10	
<i>Vistas</i>	15	
11. One out of two long answer type question based on Supplementary Reader to test comprehension and extrapolation of theme, character and incidents (Expected word limit about 125-150 words)	7	

4. हिंदी (आधार) कोड सं० 302

प्रस्तावना

दसवीं कक्षा तक हिंदी का अध्ययन करने वाला विद्यार्थी समझते हुए पढ़ने व सुनने के साथ-साथ हिंदी में सोचने और उसे मौखिक एवं लिखित रूप में व्यक्त कर पाने की सामान्य दक्षता अर्जित कर चुका होता है। उच्चतर माध्यमिक स्तर पर आने के बाद इन सभी दक्षताओं को सामान्य से ऊपर उस स्तर तक ले जाने की दरकार होती है, जहाँ भाषा का इस्तेमाल भिन्न-भिन्न व्यवहार-क्षेत्रों की मांगों के अनुरूप किया जा सके। आधार पाठ्यक्रम साहित्यिक बोध के साथ-साथ भाषाई दक्षता के विकास को ज्यादा अहमियत देता है। यह पाठ्यक्रम उन विद्यार्थियों के लिए उपयोगी साबित होगा, जो आगे विश्वविद्यालय में अध्ययन करते हुए हिंदी को एक विषय के रूप में पढ़ेंगे या विज्ञान/समाजविज्ञान के किसी विषय को हिंदी माध्यम से पढ़ना चाहेंगे। यह उनके लिए भी उपयोगी साबित होगा, जो उच्चतर माध्यमिक स्तर की शिक्षा के बाद किसी तरह के रोज़गार में लग जाएंगे। वहाँ कामकाजी हिंदी का आधारभूत अध्ययन काम आएगा। जिन विद्यार्थियों की दिलचस्पी जनसंचार माध्यमों में होगी, उनके लिए यह पाठ्यक्रम एक आरंभिक पृष्ठभूमि निर्मित करेगा। इसके साथ ही यह पाठ्यक्रम सामान्य रूप से तरह-तरह के साहित्य के साथ विद्यार्थियों के संबंध को सहज बनाएगा। विद्यार्थी भाषिक अभिव्यक्ति के सूक्ष्म एवं जटिल रूपों से परिचित हो सकेंगे, वे यथार्थ को अपने विचारों में व्यवस्थित करने के साधन के तौर पर भाषा का अधिक सार्थक उपयोग कर पाएंगे और उनमें जीवन के प्रति मानवीय संवेदना एवं सम्यक् दृष्टि का विकास हो सकेगा।

उद्देश्य

- इन माध्यमों और विधाओं के लिए उपयुक्त भाषा, प्रयोग की इतनी क्षमता उनमें आ चुकी होगी कि वे स्वयं इससे जुड़े उच्चतर पाठ्यक्रमों को समझ सकेंगे।
- सामाजिक हिंसा की भाषिक अभिव्यक्ति की समझ।
- भाषा के अंदर सक्रिय सत्ता संबंध की समझ।
- सृजनात्मक साहित्य को सराह पाने और उसका आनंद उठाने की क्षमता का विकास तथा भाषा में सौंदर्यात्मकता उत्पन्न करने वाली सृजनात्मक युक्तियों की संवेदना का विकास।
- विद्यार्थियों के भीतर सभी प्रकार की विविधताओं (धर्म, जाति, जेंडर, क्षेत्र भाषा संबंधी) के प्रति सकारात्मक एवं विवेकपूर्ण रवैये का विकास।

- पठन-सामग्री को भिन्न-भिन्न कोणों से अलग-अलग सामाजिक, सांस्कृतिक चिंताओं के परिप्रेक्ष्य में देखने का अभ्यास कराना तथा नज़रिये की एकांगिकता के प्रति आलोचनात्मक दृष्टि का विकास करना।
- विद्यार्थी में स्तरीय साहित्य की समझ और उसका आनंद उठाने की स्फूर्ति, विकास, उसमें साहित्य को श्रेष्ठ, बनाने वाले तत्वों की संवेदना का विकास।
- विभिन्न ज्ञानानुशासनों के विमर्श की भाषा के रूप में हिंदी की विशिष्ट प्रकृति और उसकी क्षमताओं का बोध।
- कामकाजी हिंदी के उपयोग के कौशल का विकास।
- संचार माध्यमों (प्रिंट और इलेक्ट्रॉनिक) में प्रयुक्त हिंदी की प्रकृति से परिचय और इन माध्यमों की मांगों के अनुरूप मौखिक एवं लिखित अभिव्यक्ति का विकास।
- विद्यार्थी में किसी भी अपरिचित विषय से संबंधित प्रासंगिक जानकारी के स्रोतों का अनुसंधान और उन्हें व्यवस्थित ढंग से उनकी मौखिक और लिखित प्रस्तुति करने की क्षमता का विकास।

शिक्षण-युक्तियाँ

- कुछ बातें इस स्तर पर हिंदी शिक्षण के लक्ष्यों के संदर्भ में सामान्य रूप से कही जा सकती हैं। एक तो यही कि कक्षा में दबाव एवं तनाव मुक्त माहौल होने की स्थिति में ही ये लक्ष्य हासिल किए जा सकते हैं। चूँकि इस पाठ्यक्रम में तैयारशुदा उत्तरों को कंटस्थ कर लेने की कोई अपेक्षा नहीं है, इसलिए चीजों को समझने और उस समझ के आधार पर उत्तर को शब्दबद्ध करने की योग्यता विकसित करना ही हमारा काम है। इस योग्यता के विकास के लिए कक्षा में विद्यार्थियों और शिक्षक के बीच निर्बाध संवाद जरूरी है। विद्यार्थी अपनी शंकाओं और उलझनों को जितना ही अधिक व्यक्त करेंगे, उतनी ही ज्यादा सफाई उनमें आ पाएगी।
- भाषा की कक्षा से समाज में मौजूद विभिन्न प्रकार के द्वंद्वों पर बातचीत का मंच बनाना चाहिए। उदाहरण के लिए संविधान में शब्द विशेष के प्रयोग पर मनाही को चर्चा का विषय बनाया जा सकता है। यह समझ जरूरी है कि छात्रों को सिर्फ सकारात्मक पाठ देने से नहीं काम चलेगा बल्कि उन्हें समझाकर भाषिक यथार्थ का सीधे सामना करवाने वाले पाठों से परिचय होना जरूरी है।

- शंकाओं और उलझनों को रखने के अलावा भी कक्षा में विद्यार्थियों को अधिक-से-अधिक बोलने के लिए प्रेरित किया जाना जरूरी है। उन्हें यह अहसास कराया जाना चाहिए कि वे पठित सामग्री पर राय देने का अधिकार और उसकी काबिलियत रखते हैं। उनकी राय को तवज्जों देने और उसे बेहतर तरीके से पुनर्प्रस्तुत करने की अध्यापकीय शैली यहां बहुत उपयोगी होगी।
- विद्यार्थियों को संवाद में शामिल करने के लिए यह भी जरूरी होगा कि उन्हें एक नामहीन समूह न मानकर अलग-अलग व्यक्तियों के रूप में अहमियत दी जाए। शिक्षक को अक्सर एक कुशल संयोजक की भूमिका में स्वयं को देखना होगा, जो किसी भी इच्छुक व्यक्ति को संवाद का भागीदार बनने से वंचित नहीं रखता, उसके कच्चे-पक्के वक्तव्य को मानक भाषा-शैली में ढाल कर उसे एक आभा दे देता है और मौन को अभिव्यंजना मान बैठे लोगों को मुखर होने पर बाध्य कर देता है।
- अप्रत्याशित विषयों पर चिंतन करने और सोचे हुए की मौखिक व लिखित अभिव्यक्ति करने की योग्यता का विकास शिक्षक के सचेत प्रयास से ही संभव है। इसके लिए शिक्षक को एक निश्चित अंतराल पर नए-नए विषय प्रस्तावित कर लेख एवं अनुच्छेद लिखने तथा संभाषण करने के लिए पूरी कक्षा को प्रेरित करना होगा। यह अभ्यास ऐसा है, जिसमें विषयों की कोई सीमा तय नहीं की जा सकती। विषय की निस्सीम संभावना के बीच शिक्षक यह सुनिश्चित कर सकता है कि उसके विद्यार्थी किसी निबंध-संकलन या कुंजी से तैयारशुदा सामग्री को उतार भर न ले। तैयारशुदा सामग्री के लोभ से, बाध्यतावश ही सही मुक्ति पाकर विद्यार्थी नये तरीके से सोचने और उसे शब्दबद्ध करने के यत्न में सन्नद्ध होंगे। मौखिक अभिव्यक्ति पर भी विशेष ध्यान देने की ज़रूरत है, क्योंकि भविष्य में साक्षात्कार संगोष्ठी जैसे मौकों पर यही योग्यता विद्यार्थी के काम आती है। इसके अभ्यास के सिलसिले में शिक्षक को उचित हावभाव, मानक उच्चारण, पॉज, बलाघात, हाजिरजवाबी इत्यादि पर खास बल देना होगा।
- मध्य कालीन काव्य की भाषा के मर्म से विद्यार्थी का परिचय कराने के लिए ज़रूरी होगा कि किताबों में आए काव्यांशों की संगीतबद्ध प्रस्तुतियों के ऑडियो-वीडियो कैसेट तैयार किए जाएं। अगर आसानी से कोई गायक/गायिका मिले तो कक्षा में मध्यकालीन साहित्य के अध्यापन-शिक्षण में उससे मदद ली जानी चाहिए।
- वृत्तचित्रों और फीचर फिल्मों को शिक्षण सामग्री के तौर पर इस्तेमाल करने की ज़रूरत है। इनके प्रदर्शन के क्रम में इन पर लगातार बातचीत के ज़रिए सिनेमा के माध्यम से भाषा के प्रयोग की

विशिष्टता की पहचान कराई जा सकती है और हिंदी की अलग-अलग छटा दिखाई जा सकती है। विद्यार्थियों को स्तरीय परीक्षा करने को भी कहा जा सकता है।

- कक्षा में सिर्फ एक पाठ्यपुस्तक की भौतिक उपस्थिति से बेहतर यह है कि शिक्षक के हाथ में तरह-तरह की पाठ्यसामग्री को विद्यार्थी देख सकें और शिक्षक उनका कक्षा में अलग-अलग मौकों पर इस्तेमाल कर सकें।
- भाषा लगातार ग्रहण करने की क्रिया में बनती है, इसे प्रदर्शित करने का एक तरीका यह भी है कि शिक्षक खुद यह सिखा सकें कि वे भी शब्दकोश, साहित्यकोश, संदर्भग्रंथ की लगातार मदद ले रहे हैं। इससे विद्यार्थियों में इसका इस्तेमाल करने को लेकर तत्परता बढ़ेगी। अनुमान के आधार पर निकटतम अर्थ तक पहुंचकर संतुष्ट होने की जगह वे सही अर्थ की खोज करने का अर्थ समझा जाएंगे। इससे शब्दों की अलग-अलग रंगत का पता चलेगा और उनमें संवेदनशीलता बढ़ेगी। वे शब्दों के बारीक अंतर के प्रति और सजग हो पाएंगे।
- कक्षा-अध्यापन के पूरक कार्य के रूप में सेमिनार, ट्यूटोरियल कार्य, समस्या-समाधान कार्य, समूह चर्चा, परियोजना, कार्य, स्वाध्याय आदि पर बल दिया जाना चाहिए। पाठ्यक्रम में जनसंचार माध्यमों से संबंधित अंशों को देखते हुए यह जरूरी है कि समय-समय पर इन माध्यमों से जुड़े व्यक्तियों और विशेषज्ञों को भी स्कूल में बुलाया जाए तथा उनकी देख-रेख में कार्यशालाएं आयोजित की जाएं।

5. हिंदी (केंद्रिक)

कोड सं. 302

कक्षा-11

पूर्णांक-100

(क) अपठित बोध (गद्यांश और काव्यांश-बोध)	10 +5	15
(ख) रचनात्मक लेखन (कामकाजी हिंदी और रचनात्मक लेखन)		25
(ग) पाठ्य पुस्तक : आरोह (भाग-1)	20+15	35
पूरक पुस्तक : वितान (भाग-1)		15
(घ) मौखिक अभिव्यक्ति		10

क) अपठित बोध : **15**

1. काव्यांश – बोध: (काव्यांश पर आधारित पाँच लघूत्तरात्मक प्रश्न) 05
2. गद्यांश – बोध: (गद्यांश पर आधारित बोध, प्रयोग, रचनांतरण, शीर्षक आदि पर लघूत्तरात्मक प्रश्न) 10

(ख) रचनात्मक लेखन : (कामकाजी हिंदी और रचनात्मक लेखन) **15+10 25**

रचनात्मक लेखन पर दो प्रश्न

3. • निबंध (विकल्प सहित) 10
4. • कार्यालयी पत्र (विकल्प सहित) 05
5. निर्धारित पुस्तक '**अभिव्यक्ति और माध्यम**' के आधार पर जनसंचार की विधाओं पर दो प्रश्न
• प्रिंट माध्यम (समाचार और सम्पादकीय)
• रिपोर्ट/आलेख } 05
6. फीचर लेखन (जीवन-संदर्भों से जुड़ी घटनाओं और स्थितियों पर) 05

ग आरोह (काव्य-भाग- 20 अंक, गद्य-भाग-15 अंक) **35**

(काव्य-भाग)

7. दो काव्यांशों में से किसी एक पर अर्थग्रहण के चार प्रश्न (2+2+2+2) 8
8. दो में से एक काव्यांश के सौंदर्यबोध पर दो प्रश्न (3+3) 06
9. कविता की विषय-वस्तु पर आधारित तीन लघूत्तरात्मक प्रश्न (2+2+2) 06
(गद्य-भाग)
10. दो में से एक गद्यांश पर आधारित अर्थग्रहण संबंधित तीन प्रश्न (2+2+2) 06
11. पाठों की विषयवस्तु पर आधारित चार में से तीन बोधात्मक प्रश्न (3+3+3) 09

वितान – भाग : 1

15

12. पाठों की विषयवस्तु पर आधारित **चार** में से **तीन** लघूत्तरात्मक प्रश्न (3+3+3) 9
13. विषयवस्तु पर आधारित **दो** में से **एक** निबंधात्मक प्रश्न 6

घ मौखिक परीक्षण

10 अंक

श्रवण (सुनना): वर्णित या पठित सामग्री को सुनकर अर्थग्रहण करना, वार्तालाप, वाद-विवाद, भाषण, कवितापाठ आदि को सुनकर समझना, मूल्यांकन करना और अभिव्यक्ति के ढंग को समझना। 5

बोलना: भाषण, सस्वर कविता-पाठ, वार्तालाप और उसकी औपचारिकता, कार्यक्रम-प्रस्तुति, कथा-कहानी अथवा घटना सुनाना, परिचय देना, भावानुकूल संवाद-वाचन। 5

वार्तालाप की दक्षताएँ :

टिप्पणी: वार्तालाप की दक्षताओं का मूल्यांकन निरंतरता के आधार पर परीक्षा के समय होगा। निर्धारित 10 अंकों में से 5 श्रवण (सुनना) के मूल्यांकन के लिए और 5 (बोलना) के मूल्यांकन के लिए होंगे।

श्रवण (सुनना) टिप्पणी का मूल्यांकन:

परीक्षक किसी प्रासंगिक विषय पर एक अनुच्छेद का स्पष्ट वाचन करेगा। अनुच्छेद, तथ्यात्मक या सुझावात्मक हो सकता है। अनुच्छेद लगभग 250 शब्दों का होना चाहिए। परीक्षक/अध्यापक को सुनते-सुनते परीक्षार्थी अलग कागज़ पर दिए हुए श्रवण-बोध के अभ्यासों को हल कर सकेंगे।

अभ्यास रिक्तस्थान-पूर्ति, बहुविकल्पी अथवा सही-गलत का चुनाव आदि विधाओं में हो सकते हैं। आधे-आधे अंक के 10 परीक्षण-प्रश्न होंगे।

मौखिक अभिव्यक्ति (बोलना) का मूल्यांकन:

1. **चित्रों के क्रम पर आधारित वर्णन:** इस भाग में अपेक्षा की जाएगी कि विवरणात्मक भाषा का प्रयोग करें।
2. **किसी चित्र का वर्णन:** चित्र लोगों या स्थानों के हो सकते हैं।
3. **किसी निर्धारित विषय पर बोलना**, जिससे विद्यार्थी/परीक्षार्थी अपने व्यक्तिगत अनुभव का प्रत्यास्मरण कर सकें।
4. कोई कहानी सुनाना या किसी घटना का वर्णन करना।

टिप्पणी :

परीक्षण से पूर्व परीक्षार्थी को कुछ तैयारी के लिए समय दिया जाए।

- विवरणात्मक भाषा में वर्तमान काल का प्रयोग अपेक्षित है।
- निर्धारित विषय परीक्षार्थी के अनुभव-जगत के हों जैसे

कोई चुटकला या हास्य प्रसंग सुनाना।

हाल में पढ़ी पुस्तक या देखे सिनेमा की कहानी सुनाना।

जब परीक्षार्थी बोलना आरंभ कर दे तो परीक्षक कम से कम हस्तक्षेप करें।

कौशलों के अंतरण का मूल्यांकन

(इस बात का निश्चय करना कि क्या विद्यार्थी में श्रवण और वाचन की निम्नलिखित योग्यताएँ हैं।)

श्रवण (सुनना)

विद्यार्थी में—

1. परिचित संदर्भों में प्रयुक्त शब्दों और पदों को समझने की सामान्य योग्यता है किन्तु वह सुसंबद्ध आशय को नहीं समझ पाता।
3. छोटे संबद्ध कथनों को परिचित संदर्भों में समझने की योग्यता है।
5. परिचित या अपरिचित दोनों संदर्भों में कथित सूचना को स्पष्ट समझने की योग्यता है।
7. दीर्घ कथनों की श्रृंखला को पर्याप्त शुद्धता से समझने ढंग और निष्कर्ष निकाल सकने की योग्यता है।
9. जटिल कथनों के विचार-बिंदुओं को समझने की योग्यता प्रदर्शित करने की क्षमता है। वह उद्देश्य के अनुकूल सुनने की कुशलता प्रदर्शित करता है।

वाचन (बोलना)

विद्यार्थी -

1. केवल अलग-अलग शब्दों और पदों के प्रयोग की योग्यता प्रदर्शित करता है किन्तु एक सुसंबद्ध स्तर पर नहीं बोल सकता।
3. परिचित संदर्भों में केवल छोटे संबद्ध कथनों का सीमित शुद्धता से प्रयोग करता है।
5. अपेक्षाकृत दीर्घ भाषण में अधिक जटिल कथनों के प्रयोग की योग्यता प्रदर्शित करता है, अभी भी कुछ अशुद्धियाँ करता है, जिससे प्रेषण में रुकावट आती है।
7. अपरिचित स्थितियों में विचारों को तार्किक से संगठित कर धारा-प्रवाह रूप में प्रस्तुत करता है। ऐसी गलतियाँ करता है जिनसे प्रेषण में रुकावट नहीं आती।
9. उद्देश्य और श्रोता के लिए उपयुक्त शैली को अपना सकता है, ऐसा करते समय वह केवल मामूली गलतियाँ करता है।

निर्धारित पुस्तकें:

- (i) **आरोह भाग-1** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (ii) **वितान भाग-1** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (iii) **अभिव्यक्ति और माध्यम** एन.सी.ई.आर.टी. द्वारा प्रकाशित

हिंदी (केंद्रिक)

कोड सं. 302

कक्षा-12

		अंक
(क)	अपठित बोध (गद्यांश और काव्यांश-बोध) 15+5	20
(ख)	रचनात्मक लेखन एवं जन-संचार माध्यम • अभिव्यक्ति और माध्यम (प्रिंट माध्यम संपादकीय, रिपोर्ट, आलेख, फीचर-लेखन) 5+5+5+5+5	25
(ग)	• पाठ्य पुस्तक : • आरोह (भाग-2) (काव्यांश-20 गद्यांश-20)	40
	• पूरक पुस्तक : वितान (भाग-2)	15
		100

क	अपठित बोध :	20
1.	काव्यांश-बोध पर आधारित पाँच लघूत्तरात्मक प्रश्न (1×5)	05
2.	गद्यांश-बोध पर आधारित बोध, प्रयोग, रचनांतरण, शीर्षक आदि पर लघूत्तरात्मक प्रश्न	15
ख	रचनात्मक लेखन एवं जन-संचार माध्यम:	25
3.	निबंध (किसी एक विषय पर)	05
4.	कार्यालय पत्र (विकल्प सहित)	05
5.	(अ) प्रिंट माध्यम, सम्पादकीय, रिपोर्ट, आलेख आदि पर पाँच अतिलघूत्तरात्मक प्रश्न पूछे जाएँगे (1×5)	05
	(आ) आलेख (किसी एक विषय पर)	05
6.	फीचर लेखन (जीवन-संदर्भों से जुड़ी घटनाओं और स्थितियों पर फीचर लेखन-विकल्प सहित)	05
ग	आरोह भाग-2 (काव्य -भाग और गद्य-भाग) (20+20)	40
7.	दो काव्यांशों में से किसी एक पर अर्थग्रहण के चार/पाँच प्रश्न	08
8.	काव्यांश के सौंदर्यबोध पर दो काव्यांशों में विकल्प दिया जाएगा तथा किसी एक काव्यांश के तीन प्रश्नों के उत्तर देने होंगे।	06
9.	कविताओं की विषय-वस्तु से संबंधित तीन में से दो लघूत्तरात्मक प्रश्न (3+3)	06
10.	दो में से किसी एक गद्यांश पर आधारित अर्थ-ग्रहण के चार प्रश्न (2+2+2+2)	08
11.	पाठों की विषय वस्तु पर आधारित पाँच में से चार बोधात्मक प्रश्न (3+3+3+3)	12

पूरक पुस्तक : वितान भाग 2		15
12. पाठों की विषयवस्तु पर आधारित तीन में से दो बोधात्मक प्रश्न	(3+3)	0 6
13. विचार/संदेश पर आधारित तीन में से दो लघूत्तरात्मक प्रश्न	(2+2)	0 4
14. विषयवस्तु पर आधारित दो में से एक निबंधात्मक प्रश्न		0 5

निर्धारित पुस्तकें:

- (i) **आरोह भाग-2** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (ii) **वितान भाग-2** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (iii) **'अभिव्यक्ति और माध्यम'** एन.सी.ई.आर.टी. द्वारा प्रकाशित

5. हिंदी (ऐच्छिक) कोड सं० 002

XI-XII

उच्चतर माध्यमिक स्तर में प्रवेश लेने वाला विद्यार्थी पहली बार सामान्य शिक्षा से विशेष अनुशासन की शिक्षा की ओर उन्मुख होता है। दस वर्षों में विद्यार्थी भाषा के कौशलों से परिचित हो जाता है। भाषा और साहित्य के स्तर पर उसका दायरा अब घर, पास-पड़ोस, स्कूल, प्रांत और देश से होता हुआ धीरे-धीरे विश्व तक फैल जाता है। वह इस उम्र में पहुँच चुका है कि देश की सांस्कृतिक, सामाजिक, राजनीतिक और आर्थिक समस्याओं पर विचार-विमर्श कर सके, एक ज़िम्मेदार नागरिक की तरह अपनी ज़िम्मेदारियों को समझ सके तथा देश और खुद को सही दिशा दे सकने में भाषा की ताकत को पहचान सके। ऐसे दृढ़ भाषिक और वैचारिक आधार के साथ जब विद्यार्थी आता है तो उसे विमर्श की भाषा के रूप में हिंदी की व्यापक समझ और प्रयोग में दक्ष बनाना सबसे पहला उद्देश्य होगा। किशोरावस्था से युवावस्था के इस नाजुक मोड़ पर किसी भी विषय का चुनाव करते समय बच्चे और उनके अभिभावक इस बात को लेकर सबसे अधिक चिंतित रहते हैं कि चयनित विषय उनके भावी कैरियर और जीविका के अवसरों में मदद करेगा कि नहीं। इस उम्र के विद्यार्थियों में चिंतन और निर्णय करने की प्रवृत्ति भी प्रबल होती है। इसी आधार पर वे अपने मानसिक, सामाजिक, बौद्धिक और भाषिक विकास के प्रति भी सचेत होते हैं और अपने भावी अध्ययन की दिशा तय करते हैं। इस स्तर पर ऐच्छिक हिंदी का अध्ययन एक सृजनात्मक, साहित्यिक, सांस्कृतिक और विभिन्न प्रयुक्तियों की भाषा के रूप में होगा। इस बात पर भी बल दिया जाएगा कि निरंतर विकसित होती हिंदी के अखिल भारतीय स्वरूप से बच्चे का रिश्ता बन सके।

इस स्तर पर विद्यार्थियों में भाषा के लिखित प्रयोग के साथ-साथ उसके मौखिक प्रयोग की कुशलता और दक्षता का विकास भी ज़रूरी है। प्रयास यह भी होगा कि विद्यार्थी अपने बिखरे हुए विचारों और भावों की सहज और मौलिक अभिव्यक्ति की क्षमता हासिल कर सकें।

इस पाठ्यक्रम के अध्ययन से (i) विद्यार्थी अपनी रुचि और आवश्यकता के अनुरूप साहित्य का गहन और विशेष अध्ययन जारी रख सकेंगे। (ii) विश्वविद्यालय स्तर पर निर्धारित हिंदी-साहित्य से संबंधित पाठ्यक्रम के साथ सहज संबंध स्थापित कर सकेंगे। (iii) लेखन-कौशल के व्यावहारिक और सृजनात्मक रूपों की अभिव्यक्ति में सक्षम हो सकेंगे। (iv) रोजगार के किसी भी क्षेत्र में जाने पर भाषा का प्रयोग प्रभावी ढंग से कर सकेंगे। और (v) यह पाठ्यक्रम विद्यार्थी को संचार तथा प्रकाशन जैसे विभिन्न-क्षेत्रों में अपनी क्षमता आजमाने के अवसर प्रदान कर सकता है।

उद्देश्य

- सृजनात्मक साहित्य की सराहना, उसका आनंद उठाना और उसके प्रति सृजनात्मक और आलोचनात्मक दृष्टि का विकास।
- साहित्य की विविध विधाओं (कविता, कहानी, निबंध आदि), महत्वपूर्ण कवियों और रचनाकारों, प्रमुख धाराओं और शैलियों का परिचय कराना।
- भाषा की सृजनात्मक बारीकियों और व्यावहारिक प्रयोगों का बोध तथा संदर्भ और समय के अनुसार प्रभावशाली ढंग से उसकी मौखिक और लिखित अभिव्यक्ति कर सकना।
- विभिन्न ज्ञानानुशासनों के विमर्श की भाषा के रूप में हिंदी की विशिष्ट प्रकृति एवं क्षमता का बोध कराना।
- साहित्य की प्रभावशाली क्षमता का उपयोग करते हुए सभी प्रकार की विविधताओं (धर्म, जाति, लिंग, वर्ग, भाषा आदि) एवं अंतरों के प्रति सकारात्मक और संवेदनशील रवैये का विकास कराना।
- देश-विदेश में प्रचलित हिंदी के रूपों से परिचित कराना।
- संचार-माध्यमों (प्रिंट और इलेक्ट्रॉनिक) में प्रयुक्त हिंदी की प्रकृति से अवगत कराना और नवीन विधियों के प्रयोग की क्षमता का विकास करना।
- साहित्य की व्यापक धारा के बीच रखकर विशिष्ट रचनाओं का विश्लेषण और विवेचन करने की क्षमता हासिल करना।
- विपरीत परिस्थितियों में भी भाषा का इस्तेमाल शांति के साथ करना।
- अमूर्त विषयों पर प्रयुक्त भाषा का विकास और कल्पनाशीलता और मौलिक चिंतन के लिए प्रयोग करना।

शिक्षण-युक्तियाँ :

इन कक्षाओं में उचित वातावरण-निर्माण में अध्यापकों की भूमिका सदैव सहायक की होनी चाहिए। उनको भाषा और साहित्य की पढ़ाई में इस बात पर ध्यान देने की ज़रूरत होगी कि—

- कक्षा का वातावरण संवादात्मक हो ताकि अध्यापक, विद्यार्थी और पुस्तक तीनों के बीच एक रिश्ता बन सके।

- गलत से सही की ओर पहुँचने का प्रयास हो। यानी बच्चों को स्वतंत्र रूप से बोलने, लिखने और पढ़ने दिया जाए और फिर उनसे होने वाली भूलों की पहचान करा कर अध्यापक अपनी पढ़ाने की शैली में परिवर्तन करे।
- ऐसे शिक्षण-बिंदुओं की पहचान की जाए, जिससे कक्षा में विद्यार्थी की सक्रिय भागीदारी रहे और अध्यापक भी उनका साथी बना रहे।
- शारीरिक बाधाग्रस्त विद्यार्थियों के लिए उपयुक्त शिक्षण-सामग्री का इस्तेमाल किया जाए तथा किसी भी प्रकार से उन्हें अन्य विद्यार्थियों से कमतर या अलग न समझा जाए।
- विभिन्न विधाओं से संबंधित रूचिकर और महत्वपूर्ण 10 अन्य पुस्तकें- जिनका जिक्र पाठ्यपुस्तक के अंत में किया जाएगा-स्वयं पढ़ने के लिए उन्हें प्रेरित किया जाए।
- कक्षा में अध्यापक को हर प्रकार की विभिन्नताओं (लिंग, धर्म, जाति, वर्ग आदि) के प्रति सकारात्मक और संवेदनशील वातावरण निर्मित करना चाहिए।
- सृजनात्मकता के अभ्यास के लिए विद्यार्थी से साल में कम से कम दो रचनाएं लिखवाई जाएं।

हिंदी (ऐच्छिक)

कोड सं. 002

कक्षा-11

(क)	अपठित बोध (गद्यांश और काव्यांश-बोध)	(10+5)	15
(ख)	रचनात्मक तथा व्यावहारिक लेखन		25
(ग)	अंतरा भाग-1 : (काव्य भाग)		20
	: (गद्य-भाग)		15
	अंतराल, भाग-I		15
(घ)	मौखिक		10

क अपठित-बोध : (गद्यांश और काव्यांश-बोध) 20

1. गद्यांश पर आधारित बोध, प्रयोग, रचानांतरण, शीर्षक आदि पर लघूत्तरात्मक प्रश्न- 15
2. काव्यांश पर आधारित पाँच लघूत्तरात्मक प्रश्न- 05

ख रचनात्मक तथा व्यावहारिक लेखन : 25

अभिव्यक्ति और माध्यम के आधार पर सृजनात्मक लेखन से संबंधित दो प्रश्न :

3. निबंध (विकल्प सहित) 10
4. कार्यालयी पत्र (विकल्प सहित) 05
5. व्यावहारिक लेखन (प्रतिवेदन, कार्यसूची, कार्यवृत्त इत्यादि) पर दो प्रश्न (5+5) 10

ग अंतरा - भाग-1 (20+15) 35

काव्य-भाग: 20

6. दो में से एक गद्यांश की सप्रसंग व्याख्या - 08
7. कविताओं के कथ्य पर दो प्रश्न- (3+3) 06
8. काव्य-सौंदर्य पर दो प्रश्न- (3+3) 06

गद्य-भाग:		15
9. सप्रसंग व्याख्या (दो में से एक)-		0 4
10. पाठों की विषय वस्तु पर आधारित तीन में से दो प्रश्न- (3+3)		0 6
11. दो में से किसी एक लेखक/कवि का साहित्यिक परिचय-		0 5

अंतराल : भाग 1 **15**

12. विषयवस्तु पर आधारित (तीन में से दो प्रश्न)- (4+4)		0 8
13. विविध विधाओं पर आधारित दो बोधात्मक प्रश्न- (4+3)		0 7

(घ) मौखिक परीक्षण : (ऐच्छिक)- **5+5** **10**

श्रवण (सुनना) : वर्णित या पठित सामग्री को सुनकर अर्थग्रहण करना, वार्तालाप करना, वाद-विवाद, भाषण, कवितापाठ आदि को सुनकर समझना, मूल्यांकन करना और अभिव्यक्ति के ढंग को समझना।

बोलना : भाषण, सस्वर कविता-पाठ, वार्तालाप और उसकी औपचारिकता, कार्यक्रम-प्रस्तुति, कथा-कहानी अथवा घटना सुनाना, परिचय देना, भावानुकूल संवाद-वाचन।

वार्तालाप की दक्षताएँ:

टिप्पणी : वार्तालाप की दक्षताओं का मूल्यांकन निरंतरता के आधार पर परीक्षा के समय ही होगा। निर्धारित 10 अंकों में से 5 श्रवण (सुनना) के मूल्यांकन के लिए और 5 (बोलना) के मूल्यांकन के लिए होंगे।

श्रवण (सुनना) का मूल्यांकन:

परीक्षक किसी प्रासंगिक विषय पर एक अनुच्छेद का स्पष्ट वाचन करेगा। अनुच्छेद तथ्यात्मक या सुझावात्मक हो सकता है। अनुच्छेद लगभग 250 शब्दों का होना चाहिए। अध्यापक को सुनते-सुनते परीक्षार्थी/परीक्षक अलग कागज़ पर दिए हुए श्रवण बोध के अभ्यासों को हल कर सकेंगे।

अभ्यास रिक्तस्थान-पूर्ति, बहुविकल्पी अथवा सत्य/असत्य का चुनाव आदि विधाओं में हो सकते हैं। प्रत्येक आधे अंक के लिए 1-1 परीक्षण प्रश्न होगा।

मौखिक अभिव्यक्ति (बोलना) का मूल्यांकन:

1. **चित्रों के क्रम पर आधारित वर्णन:** इस भाग में अपेक्षा की जाएगी कि विद्यार्थी विवरणात्मक भाषा का प्रयोग करें।
2. **किसी चित्र का वर्णन:** चित्र लोगों या स्थानों के हो सकते हैं।
3. **किसी निर्धारित विषय पर बोलना :** जिससे विद्यार्थी अपने व्यक्तिगत अनुभव का प्रत्यास्मरण कर सकें।
4. कोई कहानी सुनाना या किसी घटना का वर्णन करना।

टिप्पणी:

- परीक्षण से पूर्व परीक्षार्थी को कुछ तैयारी के लिए समय दिया जाए।
- विवरणात्मक भाषा में वर्तमान काल का प्रयोग अपेक्षित है।
- निर्धारित विषय परीक्षार्थी के अनुभव-जगत के हों। जैसे:

कोई चुटकला या हास्य प्रसंग सुनाना।

हाल में पढ़ी पुस्तक या देखे हुए चलचित्र (सिनेमा) की कहानी सुनाना।

जब परीक्षार्थी बोलना आरंभ कर दे तो परीक्षक कम से कम हस्तक्षेप करे।

कौशलों के अंतरण का मूल्यांकन

श्रवण (सुनना)

विद्यार्थी में-

1. परिचित संदर्भों में प्रयुक्त शब्दों और पदों की योग्यता प्रदर्शित करता है, किन्तु एक सुसंबद्ध आशय को नहीं समझ पाता।
3. परिचित संदर्भों में से छोटे संबद्ध कथनों को समझने की योग्यता है।
5. परिचित या अपरिचित दोनों संदर्भों में कथित सूचना को स्पष्ट समझने की योग्यता है।
7. दीर्घ कथनों की शृंखला को पर्याप्त शुद्धता से समझने और निष्कर्ष निकालने की योग्यता है।
9. जटिल कथनों के विचार-बिंदुओं को समझने की योग्यता प्रदर्शित करने की क्षमता है। वह उद्देश्य के अनुकूल सुनने की कुशलता प्रदर्शित करता है।

वाचन (बोलना)

विद्यार्थी

1. केवल अलग-अलग शब्दों और पदों के प्रयोग प्रयोग समझने की सामान्य योग्यता है किन्तु वह सुसंबद्ध स्तर पर नहीं बोल सकता।
3. परिचित संदर्भों में केवल छोटे संबद्ध कथनों का सीमित शुद्धता से प्रयोग करता है।
5. अपेक्षाकृत दीर्घ भाषण में अधिक जटिल कथनों के प्रयोग की योग्यता प्रदर्शित करता है, अभी भी कुछ अशुद्धियाँ करता है जिससे प्रेषण में रुकावट आती है।
7. अपरिचित स्थितियों में विचारों को तार्किक ढंग से संगठित कर धारा-प्रवाह रूप में प्रस्तुत करता है। वह ऐसी गलतियाँ करता है, जिनसे प्रेषण में रुकावट नहीं आती।
9. उद्देश्य और श्रोता के लिए उपयुक्त शैली को अपना सकता है, ऐसा करते समय वह केवल मामूली गलतियाँ करता है।

निर्धारित पुस्तकें:

- (i) **अंतरा भाग-1** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (ii) **अंतराल भाग-1** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (iii) **अभिव्यक्ति और माध्यम-** एन.सी.ई.आर.टी. द्वारा प्रकाशित

हिंदी (ऐच्छिक) कोड सं. 002

कक्षा-12

		अंक	
(क)	अपठित-बोध (गद्यांश और काव्यांश-बोध)	15+5	20
(ख)	रचनात्मक तथा व्यावहारिक लेखन		25
(ग)	● अंतरा (भाग-2) ● काव्य-भाग		20
	● गद्य-भाग		20
(घ)	● अंतराल (भाग-2)		15

क) अपठित बोध : (गद्यांश और काव्यांश बोध) 20

1. गद्यांश बोध: गद्यांश पर आधारित बोध, प्रयोग, स्थानान्तरण तथा शीर्षक आदि पर लघूत्तरात्मक प्रश्न 15
2. काव्यांश बोध: दो में से एक काव्यांश पर आधारित पाँच लघूत्तरात्मक प्रश्न 5

(ख) रचनात्मक तथा व्यावहारिक लेखन : 25

3. निबंध (विकल्प) (किसी एक विषय पर) 10
4. कार्यालयी पत्र (विकल्प सहित) 05
5. रचनात्मक लेखन पर दो में से एक प्रश्न 05
6. 'अभिव्यक्ति और माध्यम' के आधार पर व्यावहारिक लेखन पर पाँच लघूत्तरात्मक प्रश्न (1X5) 05

(ग) अंतरा भाग-2 (20+20 अंक) 40

काव्य-भाग: 20

7. (i) दो में से एक काव्यांश की सप्रसंग व्याख्या 8
8. (ii) कविता के कथ्य पर दो प्रश्न (3+3) 6
9. (iii) कविताओं के काव्य-सौंदर्य पर तीन में से दो प्रश्न (3+3) 6

गद्य-भाग: 20

10. (i) दो में से एक गद्यांश की सप्रसंग व्याख्या 06
11. (ii) पाठों की विषय वस्तु पर तीन में से दो प्रश्न (4+4) 08

12. (iii) **दो** में से किसी **एक** कवि/लेखक का साहित्यिक परिचय 0 6
- (घ) **पूरक पुस्तक : अंतराल (भाग-2)** 15
13. (i) विषय वस्तु पर आधारित (**चार** में से **तीन** लघूत्तरात्मक प्रश्न) 0 9
14. (ii) विषय वस्तु पर आधारित **दो** में से **एक** निबंधात्मक प्रश्न 0 6

निर्धारित पुस्तकें:

- (i) **अंतरा भाग-2** एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (ii) **अंतराल भाग-2** (विविध विधाओं का संकलन) एन.सी.ई.आर.टी. द्वारा प्रकाशित
- (iii) **अभिव्यक्ति और माध्यम** एन.सी.ई.आर.टी. द्वारा प्रकाशित

6. MATHEMATICS (Code No 041)

The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. Senior Secondary stage is a launching stage from where the students go either for higher academic education in Mathematics or for professional courses like engineering, physical and Bioscience, commerce or computer applications. The present revised syllabus has been designed in accordance with National Curriculum Frame work 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students. Motivating the topics from real life situations and other subject areas, greater emphasis has been laid on application of various concepts.

Objectives

The broad objectives of teaching Mathematics at senior school stage intend to help the pupil:

- to acquire knowledge and critical understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles, symbols and mastery of underlying processes and skills.
- to feel the flow of reasons while proving a result or solving a problem.
- to apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.
- to develop positive attitude to think, analyze and articulate logically.
- to develop interest in the subject by participating in related competitions.
- to acquaint students with different aspects of mathematics used in daily life.
- to develop an interest in students to study mathematics as a discipline.
- to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of sex biases.
- to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.

COURSE STRUCTURE

Class XI

One Paper

Three Hours

Max Marks. 100

Units	Marks
I. SETS AND FUNCTIONS	29
II. ALGEBRA	37
III. COORDINATE GEOMETRY	13
IV. CALCULUS	06
V. MATHEMATICAL REASONING	03
VI. STATISTICS AND PROBABILITY	12
	100

UNIT-I: SETS AND FUNCTIONS

1. Sets : (12) Periods

Sets and their representations. Empty set. Finite & Infinite sets. Equal sets. Subsets. Subsets of the set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement Sets.

2. Relations & Functions: (14) Periods

Ordered pairs, Cartesian product of sets. Number of elements in the cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto $\mathbb{R} \times \mathbb{R} \times \mathbb{R}$). Definition of relation, pictorial diagrams, domain, codomain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, co-domain & range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions.

3. Trigonometric Functions: (18) Periods

Positive and negative angles. Measuring angles in radians & in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x . Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ & $\cos y$. Deducing the identities like the following:

$$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \quad \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x},$$

$$\sin x + \sin y = 2 \sin \frac{x+y}{2} \cos \frac{x-y}{2}, \quad \cos x + \cos y = 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2},$$

$$\sin x - \sin y = 2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}, \quad \cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2},$$

Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$. General solution of trigonometric equations of the type $\sin \theta = \sin \alpha$, $\cos \theta = \cos \alpha$ and $\tan \theta = \tan \alpha$. Proof and simple applications of sine and cosine formulae.

UNIT-II: ALGEBRA

1. Principle of Mathematical Induction: (06) Periods

Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.

- 2. Complex Numbers and Quadratic Equations: (10) Periods**
 Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system. Square root of a complex number.
- 3. Linear Inequalities: (10) Periods**
 Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Graphical solution of system of linear inequalities in two variables.
- 4. Permutations & Combinations: (12) Periods**
 Fundamental principle of counting. Factorial n . $(n!)$ Permutations and combinations, derivation of formulae and their connections, simple applications.
- 5. Binomial Theorem: (08) Periods**
 History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, General and middle term in binomial expansion, simple applications.
- 6. Sequence and Series: (10) Periods**
 Sequence and Series. Arithmetic progression (A. P.), arithmetic mean (A.M.) Geometric progression (G.P.), general term of a G.P., sum of n terms of a G.P., Arithmetic and Geometric series infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. Sum to n terms of the special series $\sum_{k=1}^n k$, $\sum_{k=1}^n k^2$ and $\sum_{k=1}^n k^3$.

UNIT-III: COORDINATE GEOMETRY

- 1. Straight Lines: (09) Periods**
 Brief recall of two dimensional geometry from earlier classes. Shifting of origin. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axes, point-slope form, slope-intercept form, two-point form, intercept form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.
- 2. Conic Sections: (12) Periods**
 Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard of equation of a circle.
- 3. Introduction to Three -dimensional Geometry (08) Periods**
 Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.

UNIT-IV: CALCULUS

1. Limits and Derivatives: (18) Periods

Limit of function introduced as rate of change of distance function and its geometric meaning.

$\lim_{x \rightarrow 0} \frac{\log_e (1+x)}{x}$, $\lim_{x \rightarrow 0} \frac{e^x - 1}{x}$ Definition of derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

UNIT-V: MATHEMATICAL REASONING

1. Mathematical Reasoning: (08) Periods

Mathematically acceptable statements. Connecting words/ phrases - consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics. Validating the statements involving the connecting words- difference between contradiction, converse and contrapositive.

UNIT-VI: STATISTICS & PROBABILITY

1. Statistics: (10) Periods

Measures of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.

2. Probability: (10) Periods

Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with the theories of earlier classes. Probability of an event, probability of 'not', 'and' & 'or' events.

CLASS XII

One Paper

Three Hours

Marks: 100

Units	Marks
I. RELATIONS AND FUNCTIONS	10
II. ALGEBRA	13
III. CALCULUS	44
IV. VECTORS AND THREE - DIMENSIONAL GEOMETRY	17
V. LINEAR PROGRAMMING	06
VI. PROBABILITY	10
Total	100

UNIT I. RELATIONS AND FUNCTIONS

1. Relations and Functions : (10) Periods

Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

2. Inverse Trigonometric Functions: (12) Periods

Definition, range, domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

UNIT-II: ALGEBRA

1. Matrices: (18) Periods

Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices. Addition, multiplication and scalar multiplication of matrices, 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). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

2. Determinants: (20) Periods

Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors, cofactors 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.

UNIT-III: CALCULUS

1. Continuity and Differentiability: (18) Periods

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, 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. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretation.

2. Applications of Derivatives: (10) Periods

Applications of derivatives: rate of change of bodies, increasing/decreasing functions, tangents and normals, use of derivatives in approximation, 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).

3. Integrals: (20) Periods

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, simple integrals of the following type to be evaluated.

$$\frac{dx}{x^2 - a^2}, \frac{dx}{\sqrt{x^2 - a^2}}, \frac{dx}{\sqrt{a^2 - x^2}}, \frac{px+q}{ax^2+bx+c} dx, \frac{px+q}{\sqrt{ax^2+bx+c}} dx, \sqrt{a^2 - x^2} dx, \sqrt{ax^2+bx+c} dx,$$

$$\sqrt{ax^2+bx+c} dx, (px+q)\sqrt{ax^2+bx+c} dx.$$

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

4. Applications of the Integrals: (10) Periods

Applications in finding the area under simple curves, especially lines, circles/parabolas/ellipses (in standard form only), Area between the two above said curves (the region should be clearly identifiable).

5. Differential Equations: (10) Periods

Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type:

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ or constant}$$

$$+ px = q, \text{ where } p \text{ and } q \text{ are functions of } y \text{ or constant}$$

UNIT-IV: VECTORS AND THREE-DIMENSIONAL GEOMETRY

1. Vectors: (12) Periods

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. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors. Scalar triple product of vectors.

2. Three - dimensional Geometry: $\frac{dx}{dy}$ (12) Periods

Direction cosines and direction ratios of a line joining two points. Cartesian and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes. (iii) a line and a plane. Distance of a point from a plane.

UNIT-V: LINEAR PROGRAMMING

1. Linear Programming: (12) Periods

Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions, feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

UNIT-VI: PROBABILITY

1. Probability:

(18) Periods

Conditional probability, multiplication theorem on probability. independent events, total probability, Baye's theorem, Random variable and its probability distribution, mean and variance of random variable. Repeated independent (Bernoulli) trials and Binomial distribution.

Recommended Textbooks.

- 1) Mathematics Part I - Textbook for Class XI, NCERT Publication
- 2) Mathematics Part II - Textbook for Class XII, NCERT Publication

7. PHYSICS (Code No. 042)

Senior Secondary stage of school education is a stage of transition from general education to discipline-based focus on curriculum. The present updated syllabus keeps in view the rigour and depth of disciplinary approach as well as the comprehension level of learners. Due care has also been taken that the syllabus is comparable to the international standards. Salient features of the syllabus include:

- Emphasis on basic conceptual understanding of the content.
- Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
- Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
- Reducing the curriculum load by eliminating overlapping of concepts/ content within the discipline and other disciplines.
- Promotion of process-skills, problem-solving abilities and applications of Physics concepts.

Besides, the syllabus also attempts to

- strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.
- expose the learners to different processes used in Physics-related industrial and technological applications.
- develop process-skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
- promote problem solving abilities and creative thinking in learners.
- develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

PHYSICS
COURSE STRUCTURE
2011-13

Class XI (Theory)

One Paper

Three Hours

Max Marks: 70

Class XI		Weightage
Unit I	Physical World & Measurement	03
Unit II	Kinematics	10
Unit III	Laws of Motion	10
Unit IV	Work, Energy & Power	06
Unit V	Motion of System of particles & Rigid Body	06
Unit VI	Gravitation	05
Unit VII	Properties of Bulk Matter	10
Unit VIII	Thermodynamics	05
Unit IX	Behaviour of Perfect Gas & Kinetic Theory of gases	05
Unit X	Oscillations & Waves	10
Total		70

Unit I: Physical World and Measurement

(periods 10)

Physics - scope and excitement; nature of physical laws; Physics, technology and society.

Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.

Dimensions of physical quantities, dimensional analysis and its applications.

Unit II: Kinematics

(Periods 30)

Frame of reference, Motion in a straight line: Position-time graph, speed and velocity.

Elementary concepts of differentiation and intergration for describing motion. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time, position-time graphs.

Relation for uniformly accelerated motion (graphical treatment).

Scalar and vector quantities; Position and displacement vertors, general vectors and notation; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity.

Unit vector; Resolution of a vector in a plane - rectangular components. Scalar and Vector product of vectors. Motion in a plane. Cases of uniform velocity and uniform acceleration-projectile motion. Uniform circular motion.

Unit III: Laws of Motion (Periods 16)

Intuitive Concept of force. Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.

Equilibrium of concurrent forces. Static and kinetic friction, laws of friction, rolling friction, lubrication.

Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on level circular road, vehicle on banked road).

Unit IV: Work, Energy and Power (Periods 16)

Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.

Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.

Unit V: Motion of System of Particles and Rigid Body (Periods 18)

Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of uniform rod.

Moment of a force, torque, angular momentum, conservation of angular momentum with some examples.

Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions; moment of inertia, radius of gyration.

Values of moments of inertia, for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications.

Unit VI: Gravitation (Periods 14)

Keplar's laws of planetary motion. The universal law of gravitation.

Acceleration due to gravity and its variation with altitude and depth.

Gravitational potential energy; gravitational potential. Escape velocity. Orbital velocity of a satellite. Geo-stationary satellites.

Unit VII: Properties of Bulk Matter (Periods 28)

Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear, modulus of rigidity, poisson's ratio; elastic energy.

Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). Effect of gravity on fluid pressure.

Viscosity, Stokes' law, terminal velocity, Reynold's number, streamline and turbulent flow. Critical velocity. Bernoulli's theorem and its applications.

Surface energy and surface tension, angle of contact, excess of pressure, application of surface tension ideas to drops, bubbles and capillary rise.

Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion; specific heat capacity; C_p , C_v - calorimetry; change of state - latent heat capacity.

Heat transfer-conduction, convection and radiation, Qualitative ideas of Blackbody radiation green house effect, thermal conductivity, Newton's law of cooling, Wein's displacement Law, Stefan's law.

Unit VIII: Thermodynamics (Periods 12)

Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). Heat, work and internal energy. First law of thermodynamics. Isothermal and adiabatic processes.

Second law of thermodynamics: reversible and irreversible processes. Heat engines and refrigerators.

Unit IX: Behaviour of Perfect Gas and Kinetic Theory (Periods 8)

Equation of state of a perfect gas, work done in compressing a gas.

Kinetic theory of gases - assumptions, concept of pressure. Kinetic energy and temperature; rms speed of gas molecules; degrees of freedom, law of equipartition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

Unit X: Oscillations and Waves (Periods 28)

Periodic motion - period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum-derivation of expression for its time period; free and forced and damped oscillations (qualitative ideas only), resonance.

Wave motion. Transverse and longitudinal waves, speed of wave motion. Displacement relation for a progressive wave. Principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.

Practicals

Note: Every student will perform 15 experiments (8 from Section A and 7 from Section B). The activities mentioned are for the purpose of demonstration by the teachers only. These are not to be evaluated during the academic year. For evaluation in examination, students would be required to perform two experiments - One from each Section.

SECTION A

Experiments

Total Periods : 60

(Any 8 experiments out of the following to be performed by the Students)

1. To measure diameter of a small spherical/cylindrical body using Vernier Callipers.
2. To measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.
3. To measure diameter of a given wire using screw gauge.
4. To measure thickness of a given sheet using screw gauge.
5. To measure volume of an irregular lamina using screw gauge.
6. To determine radius of curvature of a given spherical surface by a spherometer.
7. To determine the mass of two different objects using a beam balance.
8. To find the weight of a given body using parallelogram law of vectors.
9. Using a simple pendulum, plot L-T and L-T² graphs. Hence find the effective length of second's pendulum using appropriate graph.
10. To study the relationship between force of limiting friction and normal reaction and to find the co-efficient of friction between a block and a horizontal surface.
11. To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination (θ) by plotting graph between force and $\sin\theta$.

Activities (For the purpose of demonstration only)

1. To make a paper scale of given least count, e.g. 0.2cm, 0.5 cm.
2. To determine mass of a given body using a metre scale by principle of moments.
3. To plot a graph for a given set of data, with proper choice of scales and error bars.
4. To measure the force of limiting friction for rolling of a roller on a horizontal plane.
5. To study the variation in range of a jet of water with angle of projection.
6. To study the conservation of energy of a ball rolling down on inclined plane (using a double inclined plane).
7. To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

SECTION B

Experiments

(Any 7 experiments out of the following to be performed by the students)

1. To determine Young's modulus of elasticity of the material of a given wire.
2. To find the force constant of a helical spring by plotting a graph between load and extension.
3. To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and $1/V$.
4. To determine the surface tension of water by capillary rise method.
5. To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body.
6. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
7. To determine specific heat capacity of a given (i) solid (ii) liquid, by method of mixtures.
8. (i) To study the relation between frequency and length of a given wire under constant tension using sonometer.
(ii) To study the relation between the length of a given wire and tension for constant frequency using sonometer.
9. To find the speed of sound in air at room temperature using a resonance tube by two-resonance positions.

Activities (For the purpose of demonstration only)

1. To observe change of state and plot a cooling curve for molten wax.
2. To observe and explain the effect of heating on a bi-metallic strip.
3. To note the change in level of liquid in a container on heating and interpret the observations.
4. To study the effect of detergent on surface tension of water by observing capillary rise.
5. To study the factors affecting the rate of loss of heat of a liquid.
6. To study the effect of load on depression of a suitably clamped metre scale loaded at (i) its end (ii) in the middle.

SUGGESTED LIST OF DEMONSTRATION EXPERIMENTS

CLASS XI

1. To demonstrate that a centripetal force is necessary for moving a body with a uniform speed along a circle, and that the magnitude of this force increases with increase in angular speed.
2. To demonstrate inter-conversion of potential and kinetic energy.
3. To demonstrate conservation of linear momentum.
4. To demonstrate conservation of angular momentum.
5. To demonstrate the effect of angle of launch on range of a projectile.

6. To demonstrate that the moment of inertia of a rod changes with the change of position of a pair of equal weights attached to the rod.
7. To study variation of volume of a gas with its pressure at constant temperature using a doctors' syringe.
8. To demonstrate Bernoulli's theorem with simple illustrations
9. To demonstrate that heat capacities of equal masses of different materials are different.
10. To demonstrate free oscillations of different vibrating systems.
11. To demonstrate resonance with a set of coupled pendulums.
12. To demonstrate longitudinal and transverse waves.
13. To demonstrate the phenomenon of beats, due to superposition, of waves produced by two sources of sound of slightly different frequencies
14. To demonstrate resonance using an open pipe.
15. To demonstrate the direction of torque.
16. To demonstrate the law of moments.

Recommended Textbooks.

1. Physics Part-I, Textbook for Class XI, Published by NCERT
2. Physics Part-II, Textbook for Class XI, Published by NCERT

Class XII (Theory)

One Paper	Time: 3 Hours	Total Periods : 180 70 Marks
Unit I	Electrostatics	08
Unit II	Current Electricity	07
Unit III	Magnetic effect of current & Magnetism	08
Unit IV	Electromagnetic Induction and Alternating current	08
Unit V	Electromagnetic Waves	03
Unit VI	Optics	14
Unit VII	Dual Nature of Matter	04
Unit VIII	Atoms and Nuclei	06
Unit IX	Electronic Devices	07
Unit X	Communication Systems	05
Total		70

Unit I: Electrostatics

(Periods 25)

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).

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 polarisation, 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. Van de Graaff generator.

Unit II: Current Electricity

(Periods 22)

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity. Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance.

Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel.

Kirchhoff's laws and simple applications. Wheatstone bridge, metre bridge.

Potentiometer - principle and its applications to measure potential difference and for comparing emf of two cells; measurement of internal resistance of a cell.

Unit III: Magnetic Effects of Current and Magnetism

(Periods 25)

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 and toroidal solenoids, Force on a moving charge in uniform magnetic and electric fields. Cyclotron.

Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-definition of ampere. Torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; Earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets.

Unit IV: Electromagnetic Induction and Alternating Currents (Periods 20)

Electromagnetic induction; Faraday's laws, induced emf and current; Lenz's Law, Eddy currents. Self and mutual induction.

Alternating currents, peak and rms value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, wattless current.

AC generator and transformer.

Unit V: Electromagnetic waves (Periods 4)

Need for displacement current, Electromagnetic waves and their characteristics (qualitative ideas only). Transverse nature of electromagnetic waves.

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit VI: Optics (Periods 30)

Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens-maker's formula. Magnification, power of a lens, combination of thin lenses in contact combination of a lens and a mirror. Refraction and dispersion of light through a prism.

Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset.

Optical instruments : Human eye, image formation and accommodation correction of eye defects (myopia, hypermetropia) using lenses. Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

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, coherent sources and sustained interference of light. Diffraction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes. Polarisation, plane polarised light Brewster's law, uses of plane polarised light and Polaroids.

Unit VII: Dual Nature of Matter and Radiation (Periods 8)

Dual nature of radiation. Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light.

Matter waves-wave nature of particles, de Broglie relation. Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).

Unit VIII: Atoms & Nuclei

(Periods 18)

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

Composition and size of nucleus, atomic masses, isotopes, isobars; isotones. Radioactivity- alpha, beta and gamma particles/rays and their properties; radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

Unit IX: Electronic Devices

(Periods 18)

Energy bands in solids (Qualitative ideas only) conductors, insulator and semiconductors; semiconductor diode – I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photodiode, solar cell, and Zener diode; Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor, transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch.

Unit X: Communication Systems

(Periods 10)

Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium. Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation. Need for modulation. Production and detection of an amplitude-modulated wave.

Practicals

Every student will perform atleast 15 experiments (7 from section A and 8 from Section B) The activities mentioned here should only be for the purpose of demonstration. One Project of three marks is to be carried out by the students.

B. Evaluation Scheme for Practical Examination:

Total Periods : 60

Two experiments one from each section	8+8 Marks
Practical record (experiments & activities)	6 Marks
Project	3 Marks
Viva on experiments & project	5 Marks

SECTION A

Experiments

(Any 7 experiments out of the following to be performed by the students)

1. To find resistance of a given wire using metre bridge and hence determine the specific resistance of its material
2. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
3. To verify the laws of combination (series/parallel) of resistances using a metre bridge.
4. To compare the emf of two given primary cells using potentiometer.
5. To determine the internal resistance of given primary cell using potentiometer.
6. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
7. To convert the given galvanometer (of known resistance and figure of merit) into an ammeter and voltmeter of desired range and to verify the same.
8. To find the frequency of the a.c. mains with a sonometer.

Activities

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

SECTION B

Experiments

(Any 8 experiments out of the following to be performed by the students)

1. To find the value of v for different values of u in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between u and v or between $1/u$ and $1/v$.
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.
7. To find refractive index of a liquid by using (i) concave mirror, (ii) convex lens and plane mirror.
8. To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.
9. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.
10. To study the characteristic of a common - emitter npn or pnp transistor and to find out the values of current and voltage gains.

Activities (For the purpose of demonstration only)

1. To identify a diode, an LED, a transistor, and IC, a resistor and a capacitor from mixed collection of such items.
2. Use of multimeter to (i) identify base of transistor (ii) distinguish between npn and pnp type transistors (iii) see the unidirectional flow of current in case of a diode and an LED (iv) check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an L.D.R.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two Polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the nature and size of the image formed by (i) convex lens (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

SUGGESTED INVESTIGATORY PROJECTS

CLASS XII

1. To study various factors on which the internal resistance/emf of a cell depends.
2. To study the variations, in current flowing, in a circuit containing a LDR, because of a variation.
 - (a) in the power of the incandescent lamp, used to 'illuminate' the LDR. (Keeping all the lamps at a fixed distance).
 - (b) in 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, a equiconvex lens, (made from a glass of known refractive index) and an adjustable object needle.
4. To design an appropriate logic gate combinatin for a given truth table.
5. To investigate the relation between the ratio of
 - (i) output and input voltage and
 - (ii) number of turns in the secondary coil and primary coil of a self designed transformer.
6. To investigate the dependence, of the angle of deviation, on the angle of incidence, using a hollow prism filled, one by one, with different transparent fluids.
7. To estimate the charge induced on each one of the two identical styro foam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.
8. To set up a common base transistor circuit and to study its input and output characteristic and to calculate its current gain.
9. To study the factor, on which the self inductance, of a coil, depends, by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an a.c. source of adjustable frequency.
10. To construct a switch using a transistor and to draw the graph between the input and output voltage and mark the cut-off, saturation and active regions.
11. To study the earth's magnatic field using a tangent galvanometer.

Recommended Textbooks.

1. Physics, Class XI, Part -I & II, Published by NCERT.
2. Physics, Class XII, Part -I & II, Published by NCERT.

8. CHEMISTRY (Code No. 043)

Rationale

Higher Secondary is the most crucial stage of school education because at this juncture specialized discipline based, content-oriented courses are introduced. Students reach this stage after 10 years of general education and opt for Chemistry with a purpose of pursuing their career in basic sciences or professional courses like medicine, engineering, technology and study courses in applied areas of science and technology at tertiary level. Therefore, there is a need to provide learners with sufficient conceptual background of Chemistry, which will make them competent to meet the challenges of academic and professional courses after the higher secondary stage.

The new and updated curriculum is based on disciplinary approach with rigour depth taking care that the syllabus is not heavy and at the same time it is comparable to the international level. The knowledge related to the subject of Chemistry has undergone tremendous changes during the past one decade. Many new areas like synthetic materials, bio-molecules, natural resources, industrial chemistry are coming in a big way and deserve to be an integral part of chemistry syllabus at senior secondary stage. At international level, new formulations and nomenclature of elements and compounds, symbols and units of physical quantities floated by scientific bodies like IUPAC and CGPM are of immense importance and need to be incorporated in the updated syllabus. The revised syllabus takes care of all these aspects. Greater emphasis has been laid on use of new nomenclature, symbols and formulations, teaching of fundamental concepts, application of concepts in chemistry to industry/ technology, logical sequencing of units, removal of obsolete content and repetition etc.

OBJECTIVES

The broad objectives of teaching Chemistry at Senior Secondary Stage are to help the learners:

- to promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
- to make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.
- to expose the students to various emerging new areas of chemistry and apprise them with their relevance in their future studies and their application in various spheres of chemical sciences and technology.
- to equip students to face various changes related to health, nutrition, environment, population, weather, industries and agriculture.
- to develop problem solving skills in students.
- to expose the students to different processes used in industries and their technological applications.
- to apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering etc.
- to acquaint students with different aspects of chemistry used in daily life.
- to develop an interest in students to study chemistry as a discipline.

COURSE STRUCTURE

Class XI (Theory)

One Paper **Time: 3 Hours** **Total Periods : 180**
70 marks

Unit No.	Title	Marks
Unit I	Some Basic Concepts of Chemistry	5
Unit II	Structure of Atom	6
Unit III	Classification of Elements and Periodicity in Properties	4
Unit IV	Chemical Bonding and Molecular Structure	5
Unit V	States of Matter: Gases and Liquids	4
Unit VI	Thermodynamics	6
Unit VII	Equilibrium	6
Unit VIII	Redox Reactions	3
Unit IX	Hydrogen	3
Unit X	s -Block Elements	5
Unit XI	Some p -Block Elements	5
Unit XII	Organic Chemistry: Some basic Principles and Techniques	7
Unit XIII	Hydrocarbons	8
Unit XIV	Environmental Chemistry	3
Total		70

Unit I: Some Basic Concepts of Chemistry (Periods 14)

General Introduction: Importance and scope of chemistry.

Historical approach to particulate nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules.

Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.

Unit II: Structure of Atom (Periods 16)

Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thompson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, De Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shape of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

Unit III: Classification of Elements and Periodicity in Properties

(Periods 8)

Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements - atomic radii, ionic radii, inert gas radii Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

Unit IV: Chemical Bonding and Molecular structure

(Periods 16)

Valence electrons, ionic bond, covalent bond; bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), hydrogen bond.

Unit V: States of Matter: Gases and Liquids

(Periods 14)

Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour, liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea)

Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations)

Unit VI: Chemical Thermodynamics

(Periods 16)

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions.

First law of thermodynamics - internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU and ΔH , Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution.

Introduction of entropy as a state function, Gibbs energy change for spontaneous and non-spontaneous processes, criteria for equilibrium.

Second law of thermodynamics (brief introduction).

Unit VII: Equilibrium

(Period 16)

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium - ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, Henderson Equation, hydrolysis of salts (elementary idea), buffer solution, solubility product, common ion effect (with illustrative examples).

Unit VIII: Redox Reactions

(Period 6)

Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions

Unit IX: Hydrogen

(Period 8)

Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide -preparation, reactions and structure and use; hydrogen as a fuel.

Unit X: s -Block Elements (Alkali and Alkaline Earth Metals) (Periods 12)

Group 1 and Group 2 Elements

General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses.

Preparation and Properties of Some Important Compounds:

Sodium carbonate, sodium chloride, sodium hydroxide and Sodium hydrogen carbonate, biological importance of sodium and potassium.

Calcium oxide and Calcium carbonate and industrial uses of lime and limestone, biological importance of Magnesium and Calcium.

Unit XI: Some p -Block Elements

(Periods 14)

General Introduction to p -Block Elements

Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties, some important compounds, borax, boric acid, boron hydrides, Aluminium: Reactions with acids and alkalies, uses.

Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements Carbon -catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides.

Important compounds of silicon and a few uses: silicon tetrachloride, silicones, silicates and Zeolites, their uses.

Unit XII: Organic Chemistry -Some Basic Principles and Technique (Periods 16)

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds.

Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation.

Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

Unit XIII: Hydrocarbons

(Periods 16)

Classification of Hydrocarbons

Aliphatic Hydrocarbons:

Alkanes- Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.

Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markonikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.

Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.

Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. nitration sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.

Unit XIV: Environmental Chemistry

(Periods 8)

Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environment pollution.

Practicals

Evaluation Scheme for Examination	Marks
Volumetric Analysis	10
Salt Analysis	8
Content Based Experiment	6
Class Record and Viva	6
Total	30

PRACTICALS SYLLABUS

Total Periods 60

Micro-chemical methods are available for several of the practical experiments.

Wherever possible such techniques should be used:

A. Basic Laboratory Techniques (Periods 2)

- 1 Cutting glass tube and glass rod
- 2 Bending a glass tube
- 3 Drawing out a glass jet
- 4 Boring a cork

B. Characterization and Purification of Chemical Substances (Periods 6)

1. Determination of melting point of an organic compound.
2. Determination of boiling point of an organic compound.
3. Crystallization of impure sample of anyone of the following: Alum, copper sulphate, Benzoic acid.

C. Experiments based on pH (Periods 6)

(a) Any one of the following experiments:

- Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator.
- Comparing the pH of solutions of strong and weak acids of same concentration.
- Study the pH change in the titration of a strong base using universal indicator.

(b) Study the pH change by common-ion in case of weak acids and weak bases.

D. Chemical Equilibrium (Periods 4)

One of the following experiments:

- (a) Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either ions.
- (b) Study the shift in equilibrium between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.

E. Quantitative Estimation (Periods 12)

- i) Using a chemical balance.
- ii) Preparation of standard solution of oxalic acid.
- iii) Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.
- iv) Preparation of standard solution of sodium carbonate.
- v) Determination of strength of a given solution of hydrochloric acid by titrating it against standard sodium carbonate solution.

F. Qualitative Analysis (Periods 16)

(a) Determination of one anion and one cation in a given salt

Cations - Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Ni^{2+} , Zn^{2+} , Co^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+

Anions - CO_3^{2-} , S^{2-} , SO_3^{2-} , SO_4^{2-} , NO_2^- , NO_3^- , Cl^- , Br^- , I^- , PO_4^{3-} , $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

(Note: Insoluble salts excluded)

(b) Detection of -nitrogen, sulphur, chlorine in organic compounds.

PROJECT (Periods 10)

Scientific investigations involving laboratory testing and collecting information from other sources.

A Few suggested Projects

- Checking the bacterial contamination in drinking water by testing sulphide ion.
- Study of the methods of purification of water.
- Testing the hardness, presence of iron, fluoride, chloride etc. Depending upon the regional variation in drinking water and study of causes of presence of these ions above permissible limit (if any).
- Investigation of the foaming capacity of different washing soaps and the effect of addition of sodium carbonate on it.
- Study the acidity of different samples of tea leaves.
- Determination of the rate of evaporation of different liquids.
- Study the effect of acids and bases on the tensile strength of fibers.
- Study of acidity of fruit and vegetable juices.

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

Recommended Textbooks.

1. Chemistry Part -I, Published by NCERT.
2. Chemistry Part -II, Published by NCERT.

Class XII (Theory)

Total Periods : 180

One Paper

Time: 3 Hours

70 marks

Unit No.	Title	Marks
Unit I	Solid State	4
Unit II	Solutions	5
Unit III	Electrochemistry	5
Unit IV	Chemical Kinetics	5
Unit V	Surface Chemistry	4
Unit VI	General Principles and Processes of Isolation of Elements	3
Unit VII	p -Block Elements	8
Unit VIII	d -and f -Block Elements	5
Unit IX	Coordination Compounds	3
Unit X	Haloalkanes and Haloarenes	4
Unit XI	Alcohols, Phenols and Ethers	4
Unit XII	Aldehydes, Ketons and Carboxylic Acids	6
Unit XIII	Organic Compounds containing Nitrogen	4
Unit XIV	Biomolecules	4
Unit XV	Polymers	3
Unit XVI	Chemistry in Everyday Life	3
	Total:	70

Unit I: Solid State

(Periods 12)

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea). Unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and n & p type semiconductors.

Unit II: Solutions

(Periods 12)

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, 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 III: Electrochemistry

(Periods 14)

Redox reactions, 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, 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, fuel cells, corrosion.

Unit IV: Chemical Kinetics

(Periods 12)

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 V: Surface Chemistry

(Periods 8)

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.

Unit VI : General Principles and Processes of Isolation of Elements

(Periods 8)

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

Unit VII: p -Block Elements

(Periods 14)

Group -15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen preparation properties & uses ; compounds of nitrogen, preparation and properties of ammonia and nitric acid, oxides of nitrogen (Structure only) ; Phosphorus - allotropic forms, compounds of phosphorus: preparation and properties of phosphine, halides PCl_3 , PCl_5 and oxoacids (elementary idea only).

Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of oxides, Ozone, Sulphur -allotropic forms; compounds of sulphur: Preparation properties and uses of sulphur-dioxide, sulphuric acid: industrial process of manufacture, properties and uses; oxoacids of sulphur (Structures only).

Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens, Preparation properties and uses of chlorine and hydrochloric acid, interhalogen compounds, oxoacids of halogens (structures only).

Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

Unit VIII: *d* and *f* Block Elements **(Periods 14)**

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.

Unit IX: Coordination Compounds **(Periods 12)**

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereo isomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).

Unit X : Haloalkanes and Haloarenes. **(Periods 12)**

Haloalkanes: Nomenclature, nature of C -X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.

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.

Unit XI: Alcohols, Phenols and Ethers **(Periods 12)**

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 XII: Aldehydes, Ketones and Carboxylic Acids **(Periods 12)**

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.

Unit XIII: Organic compounds containing Nitrogen (Periods 10)

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Cyanides and Isocyanides - will be mentioned at relevant places in context.

Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit XIV: Biomolecules (Periods 12)

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen) importance.

Proteins - Elementary idea of α - 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.

Unit XV: Polymers (Periods 8)

Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

Unit XVI: Chemistry in Everyday life (Periods 8)

Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.

Chemicals in food - preservations, artificial sweetening agents, elementary idea of antioxidants.

Cleansing agents- soaps and detergents, cleansing action.

Practicals

Evaluation Scheme for Examination	Marks
Volumetric Analysis	10
Salt Analysis	8
Content Based Experiment	6
Class record, project work and viva	6
Total	30

PRACTICAL SYLLABUS

Micro-chemical methods are available for several of the practical experiments. Wherever possible, such techniques should be used.

A. Surface Chemistry (Periods 5)

- (a) Preparation of one lyophilic and one lyophobic sol
Lyophilic sol - starch, egg albumin and gum
Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.
- (b) Dialysis of sol-prepared in (a) above.
- (c) Study of the role of emulsifying agents in stabilizing the emulsion of different oils.

B. Chemical Kinetics (Periods 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 concentration of iodide ions.
- (ii) Reaction between potassium iodate, (KIO_3) and sodium sulphite: (Na_2SO_3) using starch solution as indicator (clock reaction).

C. Thermochemistry (Periods 4)

- Any one of the following experiments
- i) Enthalpy of dissolution of copper sulphate or potassium nitrate.
- ii) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).
- iii) Determination of enthalpy change during interaction (Hydrogen bond formation) between acetone and chloroform.

D. Electrochemistry (Periods 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.

E. Chromatography (Periods 2)

- i) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values.
- ii) Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in R_f values to be provided).

F. Preparation of Inorganic Compounds (Periods 4)

- i) Preparation of double salt of ferrous ammonium sulphate or potash alum.
- ii) Preparation of potassium ferric oxalate.

G. Preparation of Organic Compounds (Periods 2)

Preparation of any one of the following compounds

- i) Acetanilide
- ii) Di-benzal acetone
- iii) p-Nitroacetanilide
- iv) Aniline yellow or 2 - Naphthol aniline dye.

H. Tests for the functional groups present in organic compounds: (Periods 6)

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

I. Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given food stuffs. (Periods 4)

J. Determination of concentration/ molarity of $KMnO_4$ solution by titrating it against a standard solution of: (Periods 8)

- i) Oxalic acid,
- ii) Ferrous ammonium sulphate

(Students will be required to prepare standard solutions by weighing themselves).

K. Qualitative analysis (Periods 14)

Determination of one cation and one anion in a given salt.

Cation - Pb^{2+} , Cu^{2+} , As^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} ,



Anions - CO_3^{2-} , S^{2-} , SO_3^{2-} , SO_4^{2-} , NO_2^- , NO_3^- , Cl^- , Br^- , I^- , PO_4^{3-} , $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

(Note: Insoluble salts excluded)

PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects.

- Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
- Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).
- Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

Note: Any investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

Recommended Textbooks.

1. Chemistry Part -I, Published by NCERT.
2. Chemistry Part -II, Published by NCERT.

9. BIOLOGY (Code No. 044)

The present syllabus reinforces the ideas introduced till the secondary classes. It provides the students with new concepts along with an extended exposure to contemporary areas of the subject. The syllabus also aims at emphasizing on the underlying principles that are common to both animals and plants as well as highlighting the relationship of biology with other areas of knowledge. The format of the syllabus allows a simple, clear, sequential flow of concepts without any jarring jumps. The syllabus also stresses on making connections better among biological concepts. It relates the study of biology to real life through the use of technology. It links the discoveries and innovations in biology to everyday life, such as environment, industry, health and agriculture. The updated syllabus also focuses on reducing the curriculum load while ensuring that ample opportunities and scope for learning and appreciating basic concepts of the subject 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/specific attitude to issues related to population, environment and development
- enhance awareness about environmental issues and problems and the appropriate solutions
- create awareness amongst the learners about variations amongst the living, and developing respect for the diversity and to appreciate that the most complex biological phenomena are also built on essentially simple processes.

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

COURSE STRUCTURE

CLASS XI (Theory)

One Paper	Time : 3 Hours	Max. Marks : 70 Marks
Unit	Title	Marks
1.	Diversity of Living Organisms	07
2.	Structural Organisation in plants and animals	12
3.	Cell: Structure and Function	15
4.	Plant Physiology	18
5.	Human Physiology	18
Total		70

Unit I: Diversity of Living Organism (25 Periods)

What is living? Biodiversity; Need for classification; Three domain of life; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature; Tools for study of Taxonomy-Museums, Zoos, Herbaria, Botanical gardens.

Five kingdom classification; Salient features and classification of Monera; Protista and Fungi into major groups; Lichens; Viruses and Viroids.

Salient features and classification of plants into major groups-Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms (three to five salient and distinguishing features and at least two examples of each category); Angiosperms - classification up to class, characteristic features and examples.

Salient features and classification of animals-non chordate up to phyla level and chordate up to classes level (three to five salient features and atleast two examples).

Unit II: Structural Organisation in Animals and Plants (25 Periods)

Morphology and modifications; Tissues; Anatomy and functions of different parts of flowering plants: Root, stem, leaf, inflorescence-cymose and racemose, flower, fruit and seed (To be dealt along with the relevant practical of the Practical Syllabus).

Animal tissues; Morphology, anatomy and functions of different system (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (a brief account only)

Unit III: Cell Structure and Function (40 Periods)

Cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell; Plant cell and animal cell; Cell envelope, cell membrane, cell wall; Cell organelles - structure and function; Endomembrane system-endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; Cytoskeleton, cilia, flagella, centrioles (ultra structure and function); Nucleus-nuclear membrane, chromatin, nucleolus.

Chemical constituents of living cells: Biomolecules-structure and function of proteins, carbohydrates, lipid, nucleic acids, Enzymes-types, properties, enzymes action.

Cell division : Cell cycle, mitosis, meiosis and their significance.

Unit IV: Plant Physiology (45 Periods)

Transport in plants; Movement of water, gases and nutrients; Cell to cell transport-Diffusion, facilitated diffusion, active transport; Plant-water relations-Imbibition, water potential, osmosis, plasmolysis; Long distance transport of water-Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; Transpiration-Opening and closing of stomata; Uptake and translocation of mineral nutrients-Transport of food, phloem transport, Mass flow hypothesis; Diffusion of gases (brief mention).

Mineral nutrition: Essential minerals, macro and micronutrients and their role; Deficiency symptoms; Mineral toxicity; elementary idea of Hydroponics as a method to study mineral nutrition; Nitrogen metabolism-Nitrogen cycle, biological nitrogen fixation.

Photosynthesis: Photosynthesis as a means of Autotrophic nutrition; Where does photosynthesis take place, How many pigments are involved in Photosynthesis (Elementary idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non cyclic photophosphorylation; Chemiosmotic hypothesis; Photorespiration; C₃ and C₄ pathways; factors affecting photosynthesis.

Respiration: Exchange of gases; Cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations-Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

Plant growth and development: Seed germination; Phases of plant growth and plant growth rate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; sequence of developmental process in a plant cell; Growth regulators-auxin, gibberellin, cytokinin, ethylene, ABA; Seed dormancy; Vernalisation: Photoperiodism.

Unit V: Human Physiology (45 Periods)

Digestion and absorption: Alimentary canal and digestive glands, Role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; Calorific value of proteins, carbohydrates and fat (for box item not to be evaluated); Egestion; Nutritional and digestive disorders-PEM, indigestion, constipation, vomiting, jaundice, diarrhea.

Breathing and Respiration: Respiratory organs in animals (recall only); Respiratory system in humans; Mechanism of breathing and its regulation in humans-Exchange of gases, transport of gases and regulation of respiration, Respiratory volume. Disorders related to respiration-Asthma, Emphysema, Occupational respiratory disorders.

Body fluids and circulation: Composition of blood, blood groups, coagulation of blood; Composition of lymph and its function; Human circulatory system-Structure of human heart and blood vessels; Cardiac cycle, cardiac output, ECG; Double circulation; Regulation of cardiac activity; Disorders of circulatory system-Hypertension, Coronary artery disease, Angina pectoris, Heart failure.

Excretory products and their elimination: Modes of excretion - Ammonotelism, ureotelism, uricotelism; Human excretory system-structure and function; Urine formation, Osmoregulation; Regulation of kidney function-Renin-angiotensin, Atrial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion; Disorders-Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney.

Locomotion and Movement: Types of movement - ciliary, flagellar, muscular; Skeletal muscle-contractile proteins and muscle contraction; Skeletal system and its functions (To be dealt with the relevant practical of Practical syllabus); Joints; Disorders of muscular and skeletal system - Myasthenia gravis, Tetany, Muscular dystrophy, Arthritis, Osteoporosis, Gout.

Neural control and coordination: Neuron and nerves; Nervous system in humans-central nervous system & peripheral nervous system and visceral nervous system; Generation and conduction of nerve impulse; Reflex action; Sensory perception; Sense organs; Elementary structure and function of eye and ear.

Chemical coordination and regulation: Endocrine glands and hormones; Human endocrine system-Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulators, Hypo-and hyperactivity and related disorders (Common disorders e.g. Dwarfism, Acromegaly, Cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease).

Imp: Diseases related to all the human physiology systems to be taught in brief.

Practicals

60 Periods

A. List of Experiments

1. Study and describe three locally available common flowering plants from each of the following families (Solanaceae, Fabaceae and Liliaceae) including dissection and display of floral whorls and anther and ovary to show number of chambers. Types of root (Tap and Adventitious); Stem (Herbaceous and woody); Leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoec leaves)
5. Study of distribution of stomata in the upper and lower surface of leaves.
6. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
7. Test for the presence of sugar, starch, proteins and fats. To detect them in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. To study the rate of respiration in flower buds/leaf tissue and germinating seeds.
10. To test the presence of urea in urine.
11. To detect the presence of sugar in urine/blood sample.
12. To detect the presence of albumin in urine.
13. To detect the presence of bile salts in urine.

B. Study/observation of the following (spotting)

1. Study parts of a compound microscope.
2. Study of the specimens and identification with reasons-Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant and one dicotyledonous plant and one lichen.
3. Study of specimens and identification with reasons-Amoeba, Hydra, Liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.

4. Study of tissues and diversity in shapes and sizes of plant and animal cells (e.g. palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibers and mammalian blood smear) through temporary/permanent slides.
5. Study of mitosis in onion root tips cells and animals cells (grasshopper) from permanent slides.
6. Study of different modifications in root, stem and leaves.
7. Study and identification of different types of inflorescence.
8. Study of imbibition in seeds/raisins.
9. Observation and comments on the experimental set up for showing:
 - a. Anaerobic respiration
 - b. Phototropism
 - c. Apical bud removal
 - d. Suction due to transpiration
10. Study of human skeleton and different types of joints.
11. Study of external morphology of cockroach through models.

**CLASS XII
(THEORY)**

(180 Periods)

Syllabus - Biology (XII)

One Paper

Time : 3 Hours

Max. Marks : 70 Marks

Unit	Title	Marks
6.	Reproduction	17
7.	Genetics and evolution	18
8.	Biology and human welfare	14
9.	Biotechnology and its applications	10
10.	Ecology and environment	14
Total		70

1. Reproduction

Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; Asexual reproduction Modes of reproduction-Asexual and sexual reproduction; Modes-Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

Sexual reproduction in flowering plant: Flower structure; Development of male and female gametophytes; Pollination-types, agencies and examples; Outbreedings devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events-Development of endosperm and embryo, Development of seed and formation of fruit; Special modes-apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle; Fertilisation embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea).

Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control – Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT (Elementary idea for general awareness).

II. Genetics and Evolution (45 Periods)

Heredity and variation: Mendelian Inheritance; Deviations from Mendelism-Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination - in humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance - Haemophilia, Colour blindness; Mendelian disorder in humans - Thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation - Lac Operon; Genome and human ganeome project; DNA finger printing.

Evolution: Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution - Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; Adaptive Radiation; Human evolution.

III. Biology and Human Welfare (35 Periods)

Health and Disease: Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology - vaccines; Cancer, HIV and AIDs; Adolescence, drug and alcohol abuse.

Improvement in food production : Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.

IV. Biotechnology and Its Applications (30 Periods)

Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology).

Application of Biotechnology in health and agriculture: Human insulin and vaccine production,

gene therapy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues- Biopiracy and patents.

V. Ecology and Environment

Organisms and environment: Habitat and niche, Population and ecological adaptations; Population interactions-mutualism, competition, predation, parasitism; Population attributes-growth, birth rate and death rate, age distribution.

Ecosystems: Patterns, components; productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services-Carbon fixation, pollination, oxygen release.

Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.

Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; Radioactive waste management; Greenhouse effect and global warming; Ozone depletion; Deforestation; Any three case studies as success stories addressing environmental issues.

Practicals

60 Periods

A. List of Experiments

1. Study pollen germination on a slide.
2. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
3. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.
4. Study the presence of suspended particulate matter in air at the two widely different sites.
5. Study of plant population density by quadrat method.
6. Study of plant population frequency by quadrat method.
7. Prepare a temporary mount of onion root tip to study mitosis.
8. To study the effect of the different temperatures and three different pH on the activity of salivary amylase on starch.

Study/observation of the following (Spotting)

1. Flowers adapted to pollination by different agencies (wind, insect).
2. Pollen germination on stigma through a permanent slide.
3. Identification of stages of gamete development i.e. T.S. testis and T.S. ovary through permanent slides (from any mammal).

4. Meiosis in onion bud cell or grass hopper testis through permanent slides.
5. T.S. of blastula through permanent slides.
6. Mendelian inheritance using seeds of different colour/sizes of any plant.
7. Prepared pedigree charts of genetic traits such as rolling of tongue, blood groups, widow's peak, colour blindness.
8. Exercise on controlled pollination - Emasculation, tagging and bagging.
9. Identification of common disease causing organisms like Ascaris, Entamoeba, Plasmodium, ringworm through permanent slides or specimens. Comment on symptoms of disease that they cause.
10. Two plants and two animals found in xerophytic conditions. Comment upon their morphological adaptations.
11. Plants and animals found in aquatic conditions. Comment upon their morphological adaptations.

10. BIOTECHNOLOGY (Code No. 045)

An unprecedented growth of human knowledge in the field of Biological Sciences coupled with equally significant developments in the field of technology have brought significant changes into existing social and economic systems. The emerging field of Biotechnology is likely to further enhance the applications of Science and Technology in the service of human welfare. Modern Biotechnology processes encompass a wide range of new products such as antibiotics, vaccines, monoclonal antibodies and many more. Furthermore, developments in recombinant DNA technology have yielded numerous new useful products in the fields of healthcare and agriculture. The present syllabus takes care of all these aspects. Due emphasis has been laid on familiarizing the learners with the fundamental concepts, basic techniques and their applications. It is expected that the knowledge gained through the study of different topics and the skills acquired through the prescribed practical work will make the learners competent to meet the challenges of academic as well as professional courses after studying the subject at senior secondary stage.

OBJECTIVES

The broad objectives of teaching Biotechnology at senior secondary level are:

- To help the learners know and understand basic facts and concepts in the subject at elementary stage.
- To expose the students to different basic processes and basic techniques used in Biotechnology
- To familiarize the learners to understand the relationship of the subject to health, nutrition, environment, agriculture and industry etc.
- To develop conceptual competence in the learners so as to cope up with professional courses in future career.
- To acquaint students with different applications of Biotechnology in everyday life.
- To develop an interest in students to study biotechnology as a discipline.

Course Structure

Class XI

(Theory)

One Paper (Three Hours)

70 Marks (180 Periods)

Unit I Biotechnology Within Your Reach

5 Marks (20 Periods)

Chapter I : Introduction to Biotechnology

Historical Perspectives
Production Strategies in Biotechnology
Quality Control
Product Safety
Good Manufacturing Practices
Good Laboratory Practices
Intellectual Property

Public Perception
Global market
Biotechnology in India and Global Trends

Unit II Biomolecules 20 Marks (50 Periods)

Chapter I : Building Blocks of Biomolecules - Structure and Dynamics

8 Marks(20 Periods)

Building Blocks of Carbohydrates - Sugars and Their Derivatives
Building Blocks of Proteins - Amino Acids
Building Blocks of Lipids - Simple Fatty Acids, Sphingosine, Glycerol and Cholesterol
Building Blocks of Nucleic Acids - Nucleotides
Biochemical Transformations

Chapter II : Structure and Function of Macromolecules

7 Marks (20 Periods)

Carbohydrates - The Energy Givers
Proteins - The Performers
Enzymes - The Catalysts
Lipids and Biomembranes - The Barriers
Nucleic Acids - The Managers

Chapter III : Biochemical Techniques

5 Marks (10 Periods)

Techniques Based on Molecular Weight or Size
Techniques Based on Polarity or Charge
Techniques Based on Spectroscopy
Techniques Based on Solubility

Unit III Cell and Development

20 Marks (50 Periods)

Chapter I : The Basic Unit of Life

8 Marks (20 Periods)

Cell Structure and Components
Tissues and Organs
Stem cells
Biodiversity
Organization of Life

Chapter II : Cell Growth and Development

7 Marks (20 Periods)

Cell Division
Cell Cycle
Cell Communication
Movement
Nutrition
Gaseous Exchanges
Internal Transport
Maintaining the Internal Environment

Reproduction
In vitro Fertilization
Animal and Plant Development
Immune Response in Animals
Programmed Cell Death
Defense Mechanisms in Plants

Chapter III : Cellular Techniques

5 Marks (10 Periods)

Microscopy
Cell Sorting
Cell Fractionation
Cell Growth Determination

Unit IV Genetics and Molecular Biology

25 (60 Periods)

Chapter I : Principles of Genetics

10 Marks (25 Periods)

Historical Perspective
Multiple Alleles
Linkage and Crossing Over
Genetic Mapping
Gene Interaction
Sex-Linked Inheritance
Extranuclear Inheritance
Quantitative Inheritance
Genes at Population Level
Discovery of DNA as Genetic Material
Mutations
DNA Repair
Genetic Disorders

Chapter II : Genome Function

10 Marks (25 Periods)

Genome Organization
DNA Replication
Fine Structure of Genes
From Gene to Protein
Transcription - The Basic Process
Genetic Code
Translation
Regulation of Gene Expression

Chapter III : Genetical Techniques

5 Marks (10 Periods)

Chromosomal Techniques
Mutagenic Techniques

Recombination in Bacteria
Breeding Methods in Plants
Pedigree Analysis in Humans

PRACTICALS

(60 Periods)

Note : Every student is required to do the following experiments during the academic session.

1. Preparation of buffers and pH determination.
2. Sterilization techniques : Wet and Dry Sterilization, Chemical sterilization and Ultrafiltration.
3. Media preparation : Solid and Liquid LB medium
4. Isolation of bacteria from curd and staining of bacteria.
5. Determination of bacterial growth curve.
6. Study of various stages of mitosis and calculation of mitotic index.
7. Preparation of Karyotyping.
8. Cell counting (using Haemocytometer)
9. Isolation of genomic DNA.
10. Detection of DNA by gel electrophoresis.
11. Isolation of casein from milk.
12. Estimation of protein by Biuret method.
13. Assaying the enzyme acid phosphatase.

Scheme of Evaluation:

Time: 3 Hours

Max. Marks 30

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

Two experiments	:	20 Marks
Viva on experiments	:	5 Marks
Practical record	:	5 Marks

CLASS XII (THEORY)

One paper

Time: 3Hours

Total Marks : 70 (180 Periods)

Unit V: Protein and Gene Manipulation

Marks 40 (100 Periods)

Chapter I: Recombinant DNA Technology

15 Marks (40 Periods)

Introduction
Tool of rDNA Technology
Marketing Recombinant DNA
Introduction of Recombinant DNA into Host Cells
Identification of Recombinants

DNA Library
DNA Probes
Hybridization Techniques
Polymerase Chain Reaction (PCR)
DNA Sequencing
Site-directed Mutagenesis

Chapter II: Genomics and Bioinformatics

10 Marks (25 Periods)

Introduction
Genome Sequencing Projects
Gene Prediction and Counting
Genome Similarity, SNPs and Comparative Genomics
Functional Genomics
Proteomics
History of Bioinformatics
Sequences and Nomenclature
Information Sources
Analysis using Bioinformatics Tools

Chapter III: Protein Structure and Engineering

15 Marks (35 Periods)

Introduction to the World of Proteins
3-D Shape of Proteins
Structure-Function Relationship in Proteins
Purification of Proteins
Characterization of Proteins
Protein based Products
Designing Proteins

Unit VI: Cell Culture Technology

30 Marks (80 Periods)

Chapter I: Microbial Culture and Applications

10 Marks (26 Periods)

Introduction
Microbial Culture Techniques
Measurement and Kinetics of microbial Growth
Scale up of microbial process
Isolation of microbial products
Strain isolation and Improvement

Applications of microbial culture technology

Biosafety of genetically modified microbes

Chapter II: Plant Cell Culture and Applications

10 Marks (27 Periods)

Introduction

Cell and Tissue Culture Techniques

Applications of Cell and Tissue Culture

Gene Transfer Methods in Plants

Transgenic Plants with Beneficial Traits

Biosafety in Plant Genetic Engineering

Chapter III: Animal Cell Culture and Applications

10 Marks (27 Periods)

Introduction

Animal Cell Culture Techniques

Characterisation of Cell Lines

Scale-up of Animal Culture Process

Applications of Animal Cell Culture

Stem Cell Technology

Bio safety of genetically modified animals

Practicals

(60 Periods)

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

List of Experiments

1. Isolation of bacterial plasmid DNA and its detection by gel electrophoresis
2. Restriction digestion of plasmid DNA and its analysis by gel electrophoresis
3. Bacterial transformation using any plasmid

4. Data retrieval and data base search using internet site NCBI
5. Download a DNA and protein sequence from internet and analyse.
6. Cell viability assay
7. Determination of blood groups.
8. Estimation of DNA
9. Ion-exchange chromatography of proteins.
10. Reading DNA sequence.
11. Estimation of blood glucose by enzymatic method (GOD/POD)
12. Project work.

Scheme of Evaluation:

Time: 3 Hours

Max. Marks 30

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

A.	Two experiments	:	6+6 (only one computer based practical)
	Practical record	:	04
	Viva on Practicals	:	04
B.	Project work	:	
	Write up	:	05
	Viva on project	:	05

Total 30

Recommended Books :

1. **A Text Book of Biotechnology** - Class XI : Published by CBSE, New Delhi
2. **A Laboratory Manual of Biotechnology** - Class XI : Published by CBSE, New Delhi
3. **A Text Book of Biotechnology** - Class XII : Published by CBSE, New Delhi
4. **A Laboratory Manual of Biotechnology** - Class XII : Published by CBSE, New Delhi

11. ENGINEERING GRAPHICS (Code No. 046)

The subject of 'Engineering Graphics' has become an indispensable tool for Engineers, Technocrats, Architects, Draftsmen, Surveyors, Designers and many others professionals in the recent times. Understanding of its fundamental principles and wider applications of the same in the above fields and many other daily life situations form the basis for the syllabus at Senior Secondary Stage.

Objectives:

The study of the subject of Engineering Graphics at Senior School Level aims at helping the learner to:

- develop clear concept and perception of form, proportion and purpose.
- develop the skill of expressing three-dimensional and two-dimensional objects into professional language and vice versa.
- acquire the ability to readily draw neat sketches, often needed in "On-job situations".
- develop a clear understanding of plane and solid Geometry and machine drawing so as to apply the same in relevant practical fields such as technology and industry.
- acquire speed and accuracy in use of drawing instruments.
- Using technology (CAD) in developing isometric and orthographics projections of simple objects.

COURSE STRUCTURE

Class XI (Theory)

One Paper	3 Hours	70 Marks
Unit		Marks
PLANE GEOMETRY		
1. Lines, angles and rectilinear figures		4
2. Circles and tangents		6
3. Special curves : ellipse, parabola, involute, cycloid, helix and sine-curve		6
SOLID-GEOMETRY		
4. Orthographic-projections of points, lines laminae, (plane) and solids		12
5. Section of solid-figures		15
MACHINE DRAWING		
6. Orthographic projections of simple machine-blocks		12
7. Isometric-projection of laminae (plane) figures		10
8. Development of surfaces		5
		Total Marks
		70

PLANE GEOMETRY

Printing English alphabets (capital & small) numerals in standard proportions. Unidirectional/aligned system of dimensioning as per SP : 46-2003 (Revised)

Unit 1: Construction of lines, angles and their divisions. Simple questions based on triangles, square, rhombus, trapeziums, regular polygons-pentagon, hexagon and octagon. **08 Pds.**

Unit 2: Construction of circles, external and internal tangents of circles, inscribing, circumscribing circles in equilateral triangle, square, rhombus, regular polygons-pentagon, hexagon and octagon. **10Pds.**

Unit 3: Construction of Engineering curves :

(a) Ellipses by concentric circles, intersecting arcs and intersecting lines.

(b) Parabola by intersecting lines and intersecting arcs

(c) Involute of a circle, cycloid, helix and sine curve. **20 Pds.**

SOLID GEOMETRY

Unit 4: Methods of orthographic projections and dimensioning strictly as per SP: 46- 2003 revised conventions. Projection of points, lines, regular plane figure and right regular solids such as cubes, prisms and pyramids (square, triangular, pentagonal and hexagonal), cones, cylinders, spheres, hemi-spheres and frustum of pyramids and cone when they are kept with their axis (a) perpendicular, to HP/VP (b) parallel to one plane and inclined to the other (c) parallel to HP and VP both. **40 Pds.**

Unit 5: Section of solids under the same conditions mentioned above made by the horizontal, vertical and inclined planes, also showing true-shape of section. **45 Pds.**

MACHINE DRAWING

Unit 6: Orthographic projections of simple machine blocks. **40 Pds.**

Unit 7: Construction of Isometric scale showing main divisions of 10 mm and smaller divisions of 1 mm each. Isometric projection(drawn to isometric scale) of figures such as triangles, squares, pentagons, hexagons, circles and semi-circles with their surface parallel to HP or VP and its one side or diagonal or diameter should be either parallel or perpendicular toHP/VP.

Unit 8: Development of the surfaces of following solids:

1. Cube, cuboid, prisms–triangular, square, pentagonal and hexagonal.

2. Pyramids (triangular, square, pentagonal and hexagonal).

3. Right circular cylinder and cone **10 Pds.**

Practicals

One paper (Practical)

3 hours

30 Marks

1. Developing "Prisms" & "Pyramids" with the help of card board (thick paper).
2. Developing different types of packing boxes (cartons).
3. Making different types of graphic designs/murals for interior/exterior decorations in colour using the knowledge of geometrical figures *with the use of any* Computer Software such as Collab-CAD, CORAL DRAW, PHOTOSHOP etc.
4. Drawing ellipse by Trammel and Thread method on the ground / drawing sheet / ply wood / card board etc.
5. Preparing top-view (plan) of a class room, Home : Drawing room / Bedroom / Study room / Kitchen, Engineering Graphics room drawing different objects therein.
6. Drawing through activities: Involute, cycloid, helix and sine curves listing their uses in daily life.
7. Preparing the following sections of solids (prisms, pyramids, sphere etc.) with clay, soap, thermocol, plasticine, wax or any other material easily and economically available. When the cutting plane is: parallel to the base, perpendicular to the base and inclined to the base.

Also creating different objects with combination of above solids.

Note :

- I. In all the practicals drawing/sketching of the views should be incorporated and evaluated accordingly.
- II. The scheme of evaluation is as follows:

(a) Practicals(2)	15 Marks
(b) Drawing/Sketch	05 Marks
(c) Viva-voce	05 Marks
(d) Sessional Work	05 Marks
Total	30 Marks.

CLASS XII
(Theory)

One Paper	3 Hours	70 Marks
Unit		Marks
I. Isometric projections of solids		25
II. Machine Drawing		
A. Drawing of Machine parts		15
B. Assembly Drawing and Dis-assembly drawings		30
1. Bearings		
2. Rod joints		
3. Tie-rod and pipe joints		
4. Couplings		
5. Pulleys		
Total Marks		70

Unit I: Isometric projection of solids **50 Pds.**

- (i) Construction of isometric scale showing main divisions of 10mm and smaller divisions of 1mm, also showing the leading angles. Drawing helping view/s such as triangles, pentagon, hexagon etc using isometric scale.
- (ii) Isometric projections (drawn to isometric scale) of solids such as cube, regular prism and pyramids (triangular, square, pentagonal and hexagonal), cone, cylinder, sphere, hemi-sphere, frustum of right regular pyramids (triangular, square, pentagonal, hexagonal) and cone, when they are cut by a plane parallel to the base. The axis and the base side of the solid should be either perpendicular to H.P. / VP or parallel to HP and VP. (Indicate the direction of viewing)
- (iii) Combination of two solids (except "frustum" of Pyramids and Cone) Keeping the base side parallel or perpendicular to H.P./V.P. and placed centrally together, axis of both the solids should not be given parallel to H.P.

Note: (1) Question on frustum will be asked in vertical position only.
(2) Hidden lines are not required in isometric projection.

Unit II: Machine Drawing (as per sp 46 : 2003)

- A. Drawing of machine parts **36 Pds.**
 - (i) Drawing to full size scale with instruments. 9 marks

(Internal choice will be given between *any two* of the following).

Introduction of threads: Standard profiles of screw threads square, knuckle, B.S.W., Metric (external and internal). Bolts (square, Hexagonal, Tee and Hook); Nuts: (square and hexagonal), Plain washer, combination of nut and bolt with or without washer for assembling two parts together, Single riveted lap joint with standard dimensions.

(ii) Free-hand sketches

6 marks

(Internal choice will be given between *any two* of the following.

Conventional representation of external and internal threads; studs (plain, square-neck and collar), screws (round-head, cheese-head, 90° flat countersunk-head, hexagonal socket-head and grub-screw). Types of rivets:- snap head, pan head-without tapered neck, flat head and 60° countersunk flat head : Types of sunk-keys (rectangular taper, woodruff and double-head feather key with gib head on both ends).

B. Assembly drawings and Dis-Assembly drawings (Internal choice will be given between an assembly drawing and a Dis-Assembly drawing). **82 Pds.**

Note:

- 1. In all Assembly drawings, half sectional front view will be asked. Side/End view or Top View/Plan will be drawn without section.**
- 2. In all the Dis-assembly drawings (asterix * marked only), only two orthographic views (one of the two views may be half in section or full in section) of any two parts.**
- 3. (a) In all sectional views, hidden lines / edges are not to be shown.**
(b) In all full views, hidden /edges are to be shown.

1. Bearings

- * (i) Open-Bearing
- * (ii) Bushed-Bearing
- (iii) Footstep-Bearing (only sectional front-view will be asked)
- (iv) Simple Plummer-Block (only sectional front view will be asked with only round brasses).

2. Rod-Joints

- * (i) Cotter-joints for circular-rods (socket and spigot joint)
- * (ii) Cotter-joints for round-rods (sleeve and cotter joint)
- * (iii) Cotter-joints for square rods (Gib and cotter-joint)
- (iv) Knuckle-joints (only sectional front view will be asked)

3. Tie-rod and Pipe-joint

- * (i) Turnbuckle
- * (ii) Flange pipe joint

4. Couplings

- (i) Unprotected Flange Coupling (having socket and spigot arrangement)
- * (ii) Protected Flange Coupling

5. Pulleys

- (i) Solid cast Iron Pulley (upto 200 mm diameter) having solid web
- (ii) Single groove V-belt pulley (upto 200 mm diameter)

Practicals

One paper (Practical)

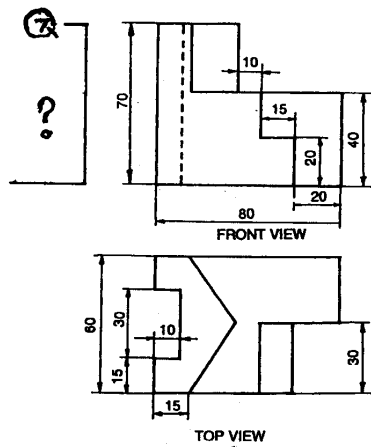
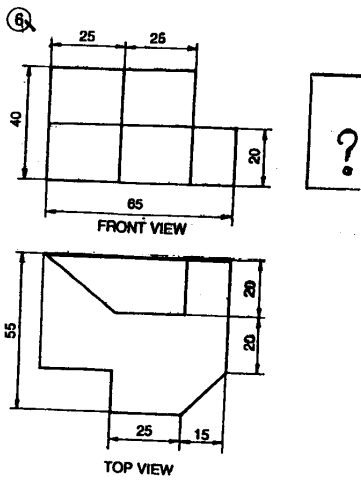
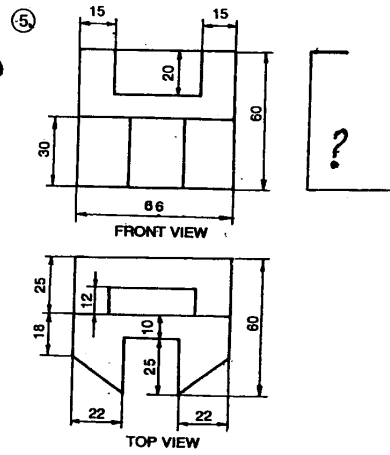
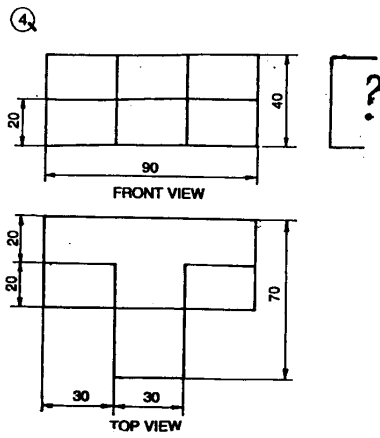
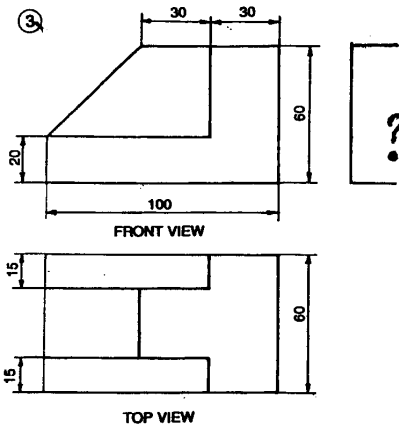
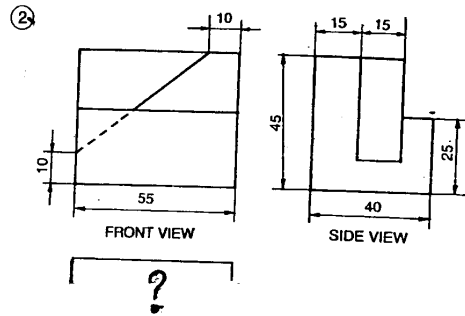
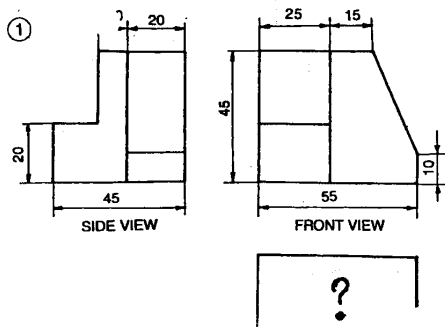
3 Hours

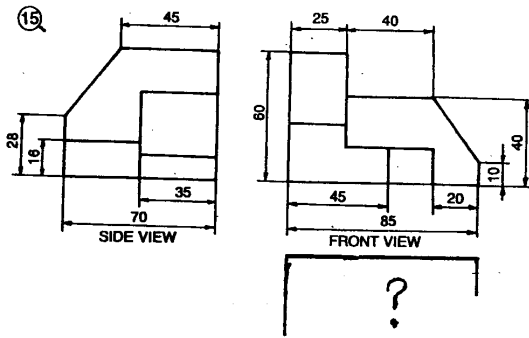
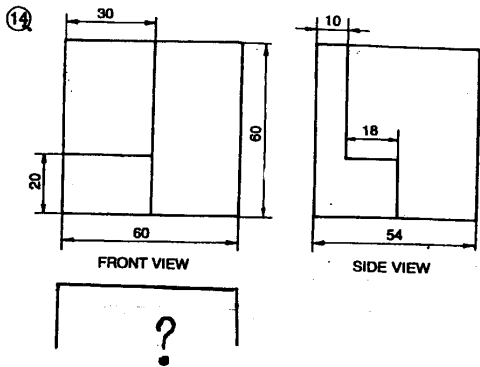
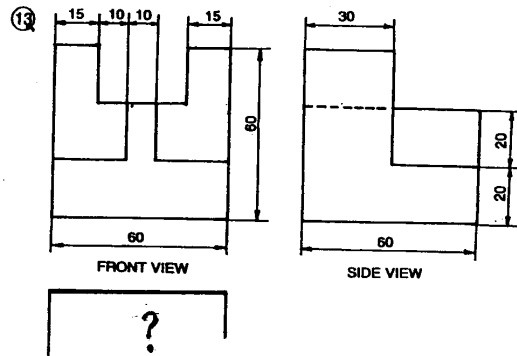
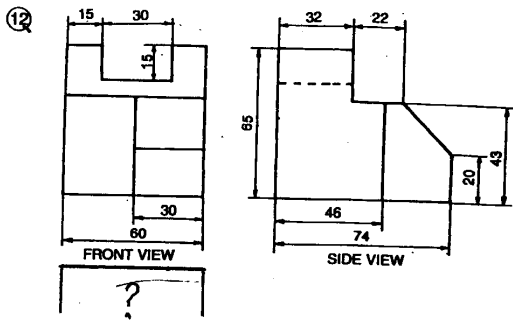
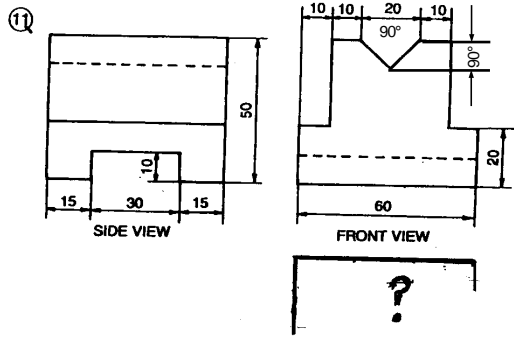
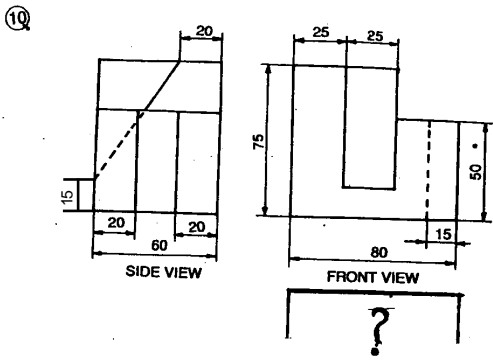
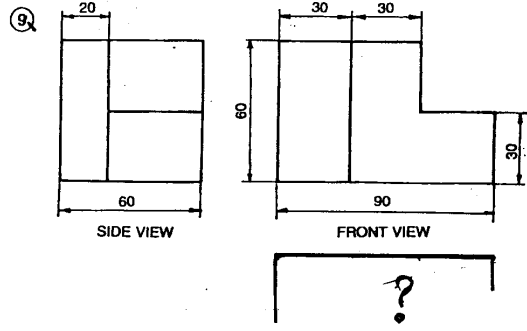
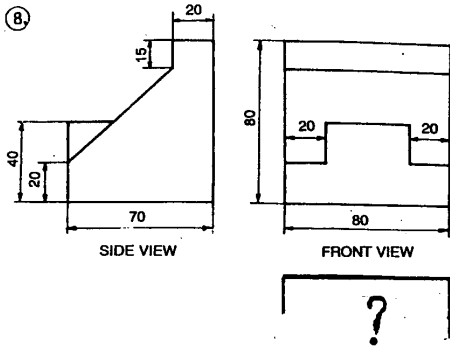
30 Marks, 72 Pds.

(I) To perform the following jobs from the given views of the prescribed Machine Block (One).

Value-Points

1.	Copy the given views	1
2.	Drawing the missing view with hidden lines	2
3.	Sketching the Isometric view without hidden edges	5
4.	To make the machine block of the above in three dimensions. (not to scale but approximately proportionately) drawn with any medium i.e. thermocol, soap-cake, plasticine, clay, wax, orchis (available with flowerists) etc.	7
(II)	"Computer aided design" CAD - Project	10
	Project file to be submitted on the simple solids (Prism, Pyramids and frustums of equilateral triangle, square, pentagon and hexagon) or machine blocks as prescribed in part-I by using the "computer aided design" CAD software.	
(III)	(i) Sessional work relating to machine blocks as prescribed.	3
	(ii) Viva-voice based on part-I and part-II	2
	Total Marks	30





12. HOME SCIENCE (Code No. 064)

Home Science as a discipline aims to empower learners by developing understanding of five different areas, namely:

- Food and Nutrition
- Human Development, Childhood Studies
- Community Resource Management and Extension
- Fabric and Apparel Science
- Development Communications and Extension

The subject helps students to understand changing needs of Indian society, academic principles as well as develop professional skills.

This would make them competent to meet challenges of becoming a responsible citizen.

OBJECTIVES

The Syllabus at Senior Secondary level develops in the learners an understanding that the knowledge and skills acquired through Home Science facilitates development of self, family and community. It endeavours to -

1. acquaint learners with the basics of human development with specific reference to self and child.
2. help develop skills of judicious management of various resources.
3. enable learners to become alert and aware consumers.
4. impart knowledge of nutrition and lifestyles to enable prevention and management of diseases.
5. inculcate healthy food habits.
6. help, develop understanding of textiles for selection and care of clothes.
7. develop skills of communication to assist in advocacy and dissemination of knowledge to community.

COURSE STRUCTURE

CLASS XI (THEORY)

One Paper (Theory)	Time: 3 Hours	70 Marks
Unit		Marks
I. Concept of Home Science		02
II. Know myself		17
III. Nutrition for Self and Family		17
IV. My Resources and Community		17
V. My Apparel		17
		70

Unit I: Concept of Home Science and its Scope **(Periods 2)**

Home Science, its scope.

Unit II: Know myself : Issues related to adolescents **(Periods 33)**

Adolescence, meaning

Characteristics:

- (i) Physical development - growth spurt, sexual development.
- (ii) Social and Emotional development : period of storm and stress, importance of peer group, interest in opposite sex, varied and changing interest, identity crises, concern for future.
- (iii) Cognitive development.

Individual differences:

Difference between two sex and same sex, early and late maturers, role of heredity and environment (family, peers, school and neighbourhood)

Special Needs of adolescents :

- (i) Nutritional requirements of adolescents - qualitative and quantitative (nutritional problems of adolescents - Iodine deficiency disease (IDD) Anaemia, obesity.)
- (ii) Eating disorders of adolescents - anorexia nervosa, Bulemia, obesity, (importance of exercise and physical activity)

Some problems of adolescence:

Awkwardness due to growth spurt; depression; alcohol, drugs and smoking; delinquency; problems related to sex; HIV / AIDS and other sexually transmitted diseases;

Population Education:

- (i) Causes and effects of overpopulation.
- (ii) Neglect of girl child - causes, government incentives to improve status of girl child and women empowerment.

First Aid

- (i) First aid in cuts, burns, fractures.
- (ii) Prevention of fire, electric shock and fall.

Unit III : Nutrition for Self and Family **(Periods 45)**

- (i) Definition of food, nutrition, health and Nutritional status.
- (ii) Signs of good health

Functions of food:

Physiological (body building, energy giving, protective, regulatory), psychological and social functions.

Selection of foods for optimum nutrition and good health:

- (i) Nutrients : sources, functions, deficiency and prevention, Proteins, Carbohydrates, Fats, Vitamins- Fat soluble (A, D, E, K) and water soluble (B₁, B₂, Niacin, Folic acid, B₁₂ and Vitamin C), Minerals (Calcium, Iron, Zinc and Iodine).
- (ii) Basic Food Groups (ICMR) and their contribution ; Concept of Balance diet, food and nutritional requirements for family (ICMR tables).
- (iii) Factors influencing selection of food : culture, family food practices, media, peer group and availability of foods)

Maximum nutritive value from food by proper selection, preparation, cooking and storage:

- (i) **Selection and Storage of Foods** : Perishable, semi-perishable, non-perishable, convenience foods.
- (ii) **Preservation of food** :
 - (a) Reasons of spoilage of food
 - (b) Brief description of household methods of preservations -
 - Refrigeration, dehydration
 - Use of chemicals and household preservatives.
- (iii) **Preparation of food** : loss of nutrients during preparation of food and their minimization.
- (iv) **Cooking** :
 - (a) Principles of cooking
 - (b) Methods of cooking - boiling, steaming, pressure cooking, deep and shallow frying, baking, sauteing, roasting, grilling, solar cooking and microwave cooking.
 - (c) Effect of cooking on the nutritive value of food.
 - (d) Method of enhancing nutritive value-germination, fermentation, fortification and food combination.

Unit IV: My Resources and Community

(Periods 36)

(i) Resources: Meaning, characteristics and types:

- (a) Human / Personal Resources : knowledge, skills, time, energy, attitudes;
- (b) Non-human / material resources : money, goods, property;
- (c) Community facilities / shared resources : Schools, parks, hospitals, roads, transport, water, electricity, library, fuel and fodder.
- (d) Need to manage the resources and methods of conservation of shared resources.

(ii) Management:

- (a) Meaning and need for management.
- (b) Steps in management: planning, organizing, controlling, implementing and evaluation.
- (c) Decision making and its role in management.

(iii) Time and energy management:

- (a) Need and procedure for managing time for occupation and leisure.
- (b) Work simplifications : meaning and methods.
- (c) Need and ways to organize space for household.
- (d) Use of colours and accessories to make house attractive.

(iv) Work ethics:

- (a) Meaning and importance; discipline at work place; reaching on time, staying in seat, knowing the job, using polite language.

Unit V: My Apparel

(Periods 34)

(i) Introduction to Fibre Science:

- (a) Characteristics of fibre
- (b) Classifications of fibre
 - Natural-cotton, silk and wool
 - Man-made (Regenerated & Synthetic), (rayon nylon and polyester)
 - Blends - Characteristics (terrycot, terrysilk, terrywool).

(ii) Fabric Construction:

- (a) Yarn making : Basic procedure (spinning, mechanical spinning, chemical spinning)
- (b) Weaving: Basic mechanism, types of weaves : plain (basket and rib), twill & satin weave. A brief mention of special weaves (pile and jacquard weaves)
- (c) Other methods of fabric constructions : knitting and nonwoven fabrics. (felting and bonding).
- (d) Effect of weaves on appearance, durability and maintenance of garment.

(iii) Fabric Finishes:

- (a) Meaning and importance.
- (b) Classification of finishes.
 - Basic finishes : (cleaning scouring), bleaching, stiffening, calendering and tentering.
 - Special finishes : (Mercerisation, shrinkage control (sanforizing), water proofing; dyeing and printing.

PRACTICALS

Time: 3 Hours	30 Marks
UNIT	MARKS
I. Concept of Home Science	-
II. Know myself	-
III. Nutrition for Self & Family	8
IV. My Resources and Community	8
V. My Apparel	7
Record	5
Viva	2
Total	30

Unit I : Concept of Home Science **(Periods 2)**

Unit II : Know myself : issues related to adolescents **(Periods 8)**

Activity: Observe and test your own strengths and weaknesses; Discuss about them in class with your teacher and fellow students; take decision about maximum utilization of strength, overcoming weaknesses, stress management.

Activity: Report situations from your life to indicate your interaction within the family, with peers and with members of the community.

Unit III : Nutrition for Self and Family **(Periods 28)**

Activity: Look for signs of good health within your family.

Activity: Make a list of foods available in the local market according to food groups.

Activity: Observe how different food stuffs are stored at home and evaluate the effectiveness of the method; practise skills to preserve and optimise nutrients by preparing meals and snacks.

Practical: Preparing meals and snacks

Practical: Household methods of food preservation - Jam, Squash / Syrup / Pickles / Chutney.

Unit IV : My Resources and Community **(Periods 30)**

Activity (Observation): Observe and list resources available at home and in neighbourhood. Make a detailed study on available community resource and its management, suggest improvements.

Activity: Critically evaluate anyone activity centre of your house. Suggest improvements.

Activity: Suggest a work plan for yourself for a day and state where and why will you take help from others.

Practicals: Make flower and foliage arrangements, floor decorations, clean and polish brass, glass, iron, aluminium and plastic surfaces.

Unit V : My Apparel

(Periods 24)

Activity: Collect samples of fabrics and study characteristics for identification.

Activity: Collect samples of weaves and identify them.

Practicals: Carry out burning test, slippage test, tearing test and test for colour fastness.

Practical: Dyeing: plain and tie dye printing: use blocks (available or make you own) on small sample.

CLASS XII (THEORY)

One Paper (Theory)

Time: 3 Hours

70 Marks

Unit	Marks
I. Know Little Children	17
II. Nutrition for Self, Family and Community	17
III. Money Management and Consumer Education	17
IV. My Apparel	17
V. Things I can do with my Home Science Training	2
Total	70

Unit I: Know Little Children (0-3 years)

(Periods 34)

Some specific characteristics: physical - height, weight and body proportions; motor development during 0-3 months, 3-6 months, 6-9 months, 9-12 months and 1-3 years (milestones only); social and emotional developments; expression of emotions socialization; cognitive development and language development.

Protection from preventable diseases: immunization - concept and types (natural and acquired), breast feeding (one of the ways to develop natural immunity); immunization chart; symptoms and incubation period of childhood diseases - tuber culosis, Diptheria, pertussis, tetamus, polio, measles, cholera, diarrhoea, chicken pox.

Special needs of disadvantaged and disabled children: socially disadvantaged, physically handicapped (Blind, partially blind & deaf, affected/missing limb): characteristics & needs.

Substitute care at home and outside: siblings, grand parents, neighbour creche, day care centres etc: Integrated Child Development Scheme (ICDS) - objectives and functions.

Unit II : Nutrition for Self, Family and Community

(Periods 36)

Planning meals for the family: meaning and importance of meal planning, principles and factors

affecting meal planning, planning meals for the family; keeping in mind the needs of individual members, 0+8y, 0-18y children adolescents, pregnant women, lactating mother, members suffering from fever and diarrhoea; role and preparation of ORS.

Ways to ensure good health for the family: using safe drinking water-importance of potable water for good health, qualities of safe drinking water; household methods of making water safe for drinking; boiling, filtering, use of alum and chlorine tablet role of hygiene for food handlers at home level. Safety against food adulteration, definition and meaning of food adulteration as given by FSSAI (Food Safety and Standard Authority of India); common adulterants present in cereals, pulses, milk and milk products, fats and oils, sugar, jaggery, honey, spices and condiments. Ill effects of some of the adulterants present in the foods: kesari dal, metanil yellow, argemone seeds.

Nutrition Education of Community : Preparation of ORS, Nutrition Education of Pregnant Women.

Unit III : Money Management and Consumer Education (Periods 36)

Family Income: various sources of family income: (i) money income, (ii) real income, direct and indirect; Supplementing family income-need & ways; need and procedure for keeping household accounts.

Savings and Investment: meaning and importance of savings; ways/methods of investment-banks, post-office, LIC, Units, PPF, PF; basis for selection of method of investment risk, security, profit, tax saving.

Consumer Protection and Education: meaning, problems faced by consumer, Consumer Protection Amendment Act (2001) and Services; Consumer aids: labels, standardization marks, advertising, guidebooks/leaflets, Consumer redressal forum.

Unit IV: My Apparel (Periods 35)

Clothing and its relation to personality: Elements of line, colour, texture: elements of design: balance, rhythm, proportion, harmony, emphasis; factors that influence the selection of clothes: personality, age, climate, occupation, figure, occasion, fashion; selection and purchase of fabrics. Purpose, quality, cost, season, reliable shop.

Checking size and quality in ready-made garments, need and criteria: seams, hem, plackets, fasteners, workmanship, design, drape.

Care of clothes: General principles and precautions stains removal (Tea, Coffee, Lipstick, Ballpin, Ink, Grease, Curry, Blood) and washing of Cotton, Wool, Silk and Acrylic. Cleansing agents: soaps and detergents (basic differences); Storage of clothes.

Unit V: Things I can do with my Home Science Education (Periods 3)

Application of knowledge of Home Science in everyday life.

Usefulness of some of the skills learnt here for supplementing family income.

Skills learnt here can be gainfully used for employment (self-employment, apprenticeship).

Further training required to make this field a career: various sources and facilities available for training.

Practicals

Time: 3 Hours

30 Marks

Unit	Marks
I. Know Little Children	3
II. Nutrition for Self, Family and Community	11
III. Money Management and Consumer Education	3
IV. My Apparel	6
V. Things I can do with my Home Science Training	-
Record	5
Viva	2

Unit I : Know Little Children (0-3 years)

(Periods 2)

Activity: Observe a child in neighbourhood or at home for various milestones of physical and motor developments and prepare a chart.

Practical: Make an interview schedule for working mother.

Activity: Interview three mothers working outside the home to find out their arrangements of substitute care for their children (0-3 yrs) in their absence.

Practical-Prepare a chart of milestones

Practical: Prepare a chart for immunization of a child.

Unit II : Nutrition for Self, Family and Community

(Periods 22)

Practicals: Plan meals for the family and carry out modifications to suit individual needs including persons suffering from fever or diarrhoea and for pregnant and lactating mother. Prepare and serve one dish.

Practical : 6 Nutrition messages for a pregnant women.

Practical: Preparation of oral rehydration solution.

Practical : Demonstrate Preparation of ORS to Mother/Neighbour/Anganwadi/Health Center.

Practical: Simple tests for checking adulteration in-

- (i) Cereals
- (ii) Pulses
- (iii) Milk and milk products
- (iv) Tea leaves

- (v) Dhania powder
- (vi) Red chillies
- (vii) Haldi powder
- (viii) Gur (Jaggery) / Bura / Sugar
- (ix) Black Pepper (Whole)
- (x) Mustard oil

Unit III: Money management and Consumer Education (Periods 8)

Activity: Open an account. Find out and report how an account is opened in a bank and post office. Collect and fill forms.

Activity: Read and evaluate labels of any four household items bearing different standardization marks.

Practical: Fill bank/post office forms

Practical: Prepare one label each for four household items/products bearing different standardization marks.

Unit IV : My Apparel (Periods 42)

Practical : Make sample of

- (a) basic stitches :
 - (i) Running Stitch
 - (ii) Hemming
 - (iii) Blind stitch
 - (iv) Inter-locking
- (b) Fasteners - Buttons and hooks.
- (c) Patch work

Practical: Examine quality in ready-made garments - workmanship and labels.

Practical:

Removal of stains of -

- (i) Tea stain
- (ii) Coffee stain
- (iii) Curry
- (iv) Grease
- (v) Ball point ink
- (vi) Lipstick

Instructions to the Examiners:

Group A

1. Three marks are allotted to Q. No. 1 in group A on Know Little Children. Any question can be selected from the list of questions given in Group A. 3 marks for correct chart of milestones/immunisation/interview schedule for working mothers. 3 Marks

Group B

2. Seven marks are allotted to Q. No. 2 in Group 2 in Group B on 'Nutrition for Self, Family' and Community. Any question can be selected from the list of questions given in Group B Part (a). Further sub-division of eight marks :
 - (i) Planning and selection of foods according to specific requirements 2 Marks
 - (ii) Preparation of one dish 3 Marks
 - (iii) Service 1 Marks
 - (iv) Work place and method of work 1 Mark
3. Three marks are allotted for question No. 3 from Group B Part (b and c). Further Sub-division of three marks:
 - (i) Preparation of oral dehydration solution 3 Marks
or
detection of adulterant
1 mark for correct test
2 marks for correct identification of adulterant.
or Nutrition messages for pregnant (anyone)
4. Three marks are allotted to Q. No. 4 from Group C on Money management and consumer education. Further sub-division of three marks:
 - Selection of correct form 1 Mark
 - Correct filling of form 2 Marksor
 - Preparation of label 2 Marks
 - Correct quality mark according to the product 1 Mark
5.
 - (i) Three marks are allotted to Q. No. 5 from Group D part (a) on 'My Apparel'. 3 Marks
 - (ii) Two Marks for checking of quality of ready-made garment 2 Marks
6. Two Marks are allotted to Q. No. 6 from Group D (part d+e). Further sub-division of two marks 2 Marks
 - Selection of correct detergent
 - Removal of stain - using chemicals/detergents/bleach 1 Mark
7. Class Record 5 Marks

8. Viva - questions should be related to practicals conducted during the examination 2 Marks

General Instructions:

- A. Out of the several alternatives given in each group of questions only one is to be assigned to the group.
- B. Preparation of dish means-methodical procedure, economical use of ingredient and finished product.
- C. Neat work
- D. In all, six questions are to be selected.

1 from Group A		3 Marks
2 from Group B	8 + 3	11 Marks
1 from Group C		3 Marks
2 from Group	3 + 3	6 Marks
Record		5 Marks
Viva		2 Marks
Total		30 Marks

List of Questions

Q. No. I : List of questions regarding the experiments from Group A (Unit I parts a, b and c). 3 Marks

1. Prepare a chart to record the milestones of physical development of child from 0-1 year.
2. Prepare a chart to record the milestones of language development of a child from 0-3 years.
3. Prepare a chart to record the milestones of motor development of a child from 0-3 years.
4. Prepare an immunisation chart for a child from 0-3 years.
5. Prepare an interview schedule for a working mother to find out the arrangement for her pre-school child in her absence.

Q. No. II : List of questions regarding the experiments from Group B (Unit II part a). 7 Marks

1. Plan meal for a family and suggest modifications for: any one of the following:
a lactating mother / a pregnant woman / a person suffering from diarrhoea / a person suffering from fever
Prepare one of the modified dishes.

Q. No. III : List of questions regarding the experiments from Group B (Unit II parts b and c). 3 Marks

1. Prepare oral rehydration solution. (ORS)

OR

2. Test adulteration and identify the adulterant in one of the following:
 - (i) Cereals
 - (ii) Pulses
 - (iii) Milk
 - (iv) Tea leaves
 - (v) Dhania Powder
 - (vi) Gur (Jaggery)
 - (vii) Haldi Powder
 - (viii) Black Pepper (Whole)

Q. No. IV : List of questions regarding the experiments from Group C (Unit III parts a and b). 3 Marks

1. Select and fill form for one of the following:
 - (a) To withdraw small amount of money.
 - (b) To withdraw large amount of money.
 - (c) To open an account in post office/bank.
 - (d) To deposit money in cash / cheque.

OR

2. Prepare label for any food product with proper quality mark.

Q. No. V : List of questions regarding the experiments from Group D (Unit IV parts a, b and c) 3 Marks

1. Make a sample of any **one** of the following:
 - (i) Hemming
 - (ii) Running stitch
 - (iii) Blind stitch
 - (iv) Inter locking
 - (v) Fasteners - buttons or hook
2. Examine two points (seams fasteners, patch, embroidery, finishing of edges) in a ready-made garment and write your observations. 2 Marks

Q. No. VI : List of questions regarding the experiments from Group D (Unit IV parts c and d). 2 Marks

1. Remove one of the following stains from a cotton cloth.
 - (i) Tea stain
 - (ii) Coffee stain

- (iii) Curry stain
- (iv) Grease
- (v) Ball point ink
- (vi) Lipstick

List of articles to be supplied by the centre:

1. Cooking utensils for each candidate - Dekchi (saucepan) with cover, Karahi, Tawa, Chakla-Belen, Karchi, Spoons, Frying Spoons, Fry pan, Stove or Gas Burner, Match box, Pressure Cooker.
2. Sample of adulterated food.
3. Chemicals and reagents for detection of adulteration.
4. Sample of stain.
5. Reagents for removal of stains.
6. Dry and fresh ingredients according to the question paper set e.g. besan, dal, vegetables, milk, spices etc.
7. Different types of bank and post-office forms.
8. Drawing sheets and plain papers. .
9. Gum.
10. Samples of different types of cloth (to test effect of temperature of water).
11. Ingredients for preparation of soaps and detergents.
12. Water arrangements.

List of articles to be brought by the candidates:

1. Serving utensils and cutlery.
2. Table cloth, napkin.
3. Tray
4. Painting colours and brushes, felt pen, eraser, scale, scissors.
5. Cloth (10 cm x 10 cm) (for sample of stitches).
6. Any ready-made garment (may be used).
7. Needle and thread.
8. Hooks and buttons.
9. Dusters - 2
10. Newspapers - 2 sheets
11. Class record or sessional work.

13. AGRICULTURE (Code No. 068)

CLASS XI (THEORY)

One Theory Paper

Time: 3 Hours

70 Marks

Unitwise Weightage

Units	Marks
1. Agrometeorology, Genetics and Plant Breeding, Biochemistry and Microbiology	35
2. Livestock Production	35

Unit 1 : Agro meteorology, Genetics and Plant Breeding, Biochemistry and Microbiology **84 Pds.**

Agrometeorology: Elements of Weather-rainfall, temperature, humidity, wind velocity, Sunshine weather forecasting, climate change in relation to crop production. **16 Pds.** **Genetics & Plant Breeding 32 Pds.**

- Cell and its structure, cell division-mitosis and meosis and their significance.
- Organisation of the genetic materials in chromosomes, DNA and RNA.
- Mendel's laws of inheritance. Reasons for the success of Mendal in his experiments Absence of linkage in Mendel's experiments.
- Quantitative inheritance, continuous and discontinuous variation in plants.
- Role of Genetics in Plant breeding, self and cross-pollinated crops, methods of breeding in field crops-introduction, selection, hybridization, mutation and polypolidy, tissue and cell culture.
- Plant Biotechnology-definition and scope in crop production.

Biochemistry: Classification of carbohydrates; proteins; lipids; vitamins and enzymes. **16 Pds.**

Microbiology: Micro-organisms-Algae, Bacteria, Fungi, Actinomyceters, Protozoa and Viruses. Role of micro-organisms in respiration, fermentation and organic matter decomposition **20 Pds.**

Unit 2: Livestock Production **84 Pds.**

Scope and importance 16 Pds.

- Importance of livestock in agriculture and industry, White revolution in India.
- Important breeds Indian and exotic, distribution of cows, buffaloes and poultry in India.

Care and management 52 Pds.

- (a) Systems of cattle and poultry housing.
- (b) Principles of feeding, feeding practices.
- (c) Balanced ration-definition and ingredients.
- (d) Management of calves, bullocks, pregnant and milch animals as well as chicks crockrels and layers, poultry.
- (e) Signs of sick animals, symptoms of common diseases in cattle and poultry, Rinderpest, black quarter, foot and mouth, mastitis and haemorrhagic septicaemia coccidiosis, Fowl pox and Ranikhet disease, their prevention and control.

Artificial Insemination

16 Pds.

Reproductive organs, collection, dilution and preservation of semen and artificial insemination, **role of artificial insemination in cattle improvement.**

Livestock Products: Processing and marketing of milk and Milk products.

CLASS XI (PRACTICALS)

One Paper

Time: 3 Hours

30 Marks

Unitwise Weightage

Units	Marks
A. Live stock Practical	16
B. Observation	05
C. Collection and Visits	05
D. Viva Voce	04

A. Livestock Practical

38 Pds.

- (a) Handling of bullocks for field operation/drenching/shoe fixing.
- (b) Score-card, method of judging milch animals.
- (c) Sign of heat in cows.
- (d) Grooming.
- (e) Determination of age of cattle
- (f) Computing ration for an animal.
- (g) Preparation of hay and silage.
- (h) Calculating the body weight of farm animals.
- (i) Care and handling of pregnant and milch cattle.
- (j) Administration of some common medicines.
- (k) Studying of the signs of sick animals.

- (l) Testing of milk fat and gravity.
- (m) Milking of cows/buffaloes.
- (n) Cleaning and maintenance of cattle sheds.
- (o) Calculating the cost of milk production per kg.
- (p) Culling of birds.
- (q) Cleaning of poultry houses.
- (r) Management of deep litter system.
- (s) Practice of record keeping and calculation of the cost of production of eggs per dozen.
- (t) Computation of poultry feed.

B. Observation

16 Pds.

- (a) Identification of common breeds of cows, buffaloes and poultry birds.
- (b) Observation of dehorning, branding, tattooing, castrating in local veterinary hospital.
- (c) Observation of artificial insemination in the local veterinary hospital.
- (d) Observing vaccination of poultry birds against common diseases.

C. Collection & Visits

- (a) Preparation of practical record.
- (b) Visit to the local dairy and poultry farms, dairy plants and plant breeding biotechnology laboratory and agro-meteorological laboratory.

Note: Students should submit a written report on the basis of experience acquired in their visits.

D. Viva Voce

CLASS XII (THEORY)

**One Theory Paper
Unitwise Weightage**

Time: 3 Hours

70 Marks

Units	Marks
1. Crop Production	40
2. Horticulture	30

Unit 1: Crop Production

96 Pds.

Introduction

08 Pds.

- (a) Targets and achievement in foodgrain production in India since independence and its future projections, sustainable crop production, commercialisation of agriculture and its scope in India.

- (b) Classification of field crops based on their utility-cereals, pulses, oils seeds, fibre, sugar and forage crops.

Soil, Soil fertility, Fertilizers and Manures

24 Pds.

- (a) Soil, soil pH, Soil texture, soil structure, soil organisms, soil tilth, soil fertility and soil health.
- (b) Essential plant nutrients, their functions and deficiency symptoms.
- (c) Soil types of India and their characteristics.
- (d) Organic nature, common fertilizers including straight, complex, fertilizer mixtures and biofertilizers; integrated nutrient management system.

Irrigation and Drainage

24 Pds.

- (a) Sources of irrigation (rain, canals, tanks, rivers, wells, tubewells).
- (b) Scheduling of irrigation based on critical stages of growth, time interval, soil moisture content and weather parameters.
- (c) Water requirement of crops.
- (d) Methods of irrigation and drainage.
- (e) Watershed management

Weed Control

8 Pds.

Principles of weed control, methods of weed control (cultural, mechanical, chemical, biological and Integrated weed management).

Crops

32 Pds.

Seed bed preparation, seed treatment, time and method of sowing/planting, seed rate; dose method and time of fertilizer application, irrigation, interculture and weed control; common pests and diseases, caused by bacteria, fungi virus and nematod, integrated pest management, harvesting, threshing, post harvest technology: storage, processing and marketing of major field crops-Rice, wheat, maize, sorghum, pearl millet, groundnut, mustard, pigeonpea, gram, sugarcane, cotton berseem.

Unit 2: Horticulture

72 Pds.

- (a) Importance of fruits and vegetables in human diet, Crop diversification & processing Industry.
- (b) Orchard-location and layout, ornamental gardening and kitchen garden.
- (c) Planting system, training, pruning, intercropping, protection *from frost* and sunburn.
- (d) Trees, shrubs, climbers, annuals, perennials-definition and examples. Propagation by seed, cutting, budding, layering and grafting.
- (e) Cultivation practices, processing and marketing of:

- (i) Fruits - mango, papaya, banana, guava, citrus, grapes.
- (ii) Vegetables - Radish, carrot, potato, onion, cauliflower, brinjal, tomato, spinach and cabbage.
- (iii) Flowers - Gladiolus, canna, chrysanthemums, roses and marigold.
- (f) Principles and methods of fruit and vegetable preservation.
- (g) Preparation of jellies, jams, ketchup, chips and their packing.

CLASS XII (PRACTICALS)

One Paper

Time : 3 Hours

30 Marks

Unitwise Weightage

Units	Marks
A. Field Crop and Horticulture Practicals	10 + 6
B. Observation	05
C. Collection and visits	07
D. Viva Voce	02

A. Field crop Practicals

38 Pds.

- (a) To find out germination percentage of crop seeds.
- (b) Soil sampling and determination of soil pH.
- (c) Preparation of nursery and seed beds.
- (d) Seed treatment with fungicides and microbial culture.
- (e) Layout of irrigation and drainage channels.
- (f) Calculation of fertilizer requirement of crops on the basis of nutrient needs.
- (g) Methods of fertilizer application including use of bio-fertilizers.
- (h) Methods of sowing/planting.
- (i) Interculture operation-weeding, earthing.
- (j) Preparation of FYM and Compost.
- (k) Uses of sprayers and dusters for pest control and nutrient spray.
- (l) Harvesting of field crops.
- (m) Determination of moisture content of crop seeds.
- (n) To find out 100-grain weight of crop seeds.

Horticulture Practical

- (a) Layout of the school garden.

- (b) Preparation for nursery raising, pot filling and planting.
- (c) Propagation by cutting, layering, grafting and budding.
- (d) Pruning and training of trees.
- (e) Establishment and maintenance of school lawn.
- (f) Preparation of tomato ketchup, jam, jelly, chips of fruits/vegetables.

Observation

16 Pds.

- (a) Identification of seeds of crops.
- (b) Identification of plants of various crops and weeds.
- (c) Identification of manures and fertilizers.
- (d) Identification of different types of tools and implements.
- (e) Identification of common local pests and diseases of plants.
- (f) Identification of different types of ornamental trees, annuals, biennials, perennials.

C. Collection and visits

18 Pds.

- (a) Preparation of herbarium of crop and weed plants.
- (b) Collection and preservation of important crop pests and diseased plant parts.
- (c) Practical record.
- (d) Participation in and visit to crop demonstrations, field operation, field days, agriculture fairs organised in the locality by the local extension agencies.
- (e) Visit to the important orchards of the locality, state research farms/seed multiplication farms and agricultural Universities/Agricultural Colleges, food processing industry.

Note: Students should submit a written report on the basis of experience acquired during their visits.

D. Viva Voce

Agriculture Practicals

A. List of Practicals

18 Pds.

1. Seed treatment against the pest indicated.
2. Find out 1000 grain weight of crop seeds provided.
3. Prepare a layout plan of a farm of 10 hectares or a school garden of one hectare/irrigation and drainage channels in a hectare of field.
4. Taking soil sample for soil moisture/pH determination.
5. Prepare an ideal seed bed/Nursery bed for the grain or vegetable crop indicated.
6. Calculate the fertilizer requirement for given area of the crop indicated.

7. Calculate the quantity of pesticide required for a given area against the pest indicated of a certain field crop. Also demonstrate the method of its application.
8. Demonstrate how would you prepare an ideal compost with the farm waste material provided.
9. Prepare the vegetable/fruit products indicated.
10. Demonstrate the ideal method of propagation of the plant indicated.
11. Identity the specimens and write two lines comment on each of them.
12. Practical records, collection, sessional work, maintenance of potted plants and reports on visits.
13. Viva-Voce.

General guidelines for evaluation

1. (i) The examiner may give anyone out of the first 7 practical exercises. It will carry 10 marks.
 (ii) He will allot one out of the next two practicals (8 & 9) which will carry 6 marks.
 (iii) For identification the teacher may provide 5 items, each item will carry one mark. (1/2 mark for identification and 1/2 mark for 2 lines comment) (5 marks)
 (iv) Practical records and maintenance of potted plants will carry 2 marks each. For collection, sessional work and visit reports, one mark each. (7 marks)
 (v) Viva Voce will carry 2 marks
2. In case of practicals, fruits preservation and methods of propagation, the student will have to write the procedure adopted and the necessary precautions to be taken in the answer sheet provided.

Suggested References

1. Garden Flowers, by V. Swaroop, National Book Trust of India.
2. Sashya Vigyan Ke Moolbhoot Sidhant, by U.K. Verma, Hindi Granth Academy, Patna (Bihar).
3. Modern Techniques of raising field crops, by Chhida Singh, Oxford and IBH Publishing Co., New Delhi.
4. Manures and Fertilizers, by K.S. Yawalkar, J.P. Agarwal and S. Bokde.
5. Fruits by Ranjeet Singh, National Book Trust, New Delhi.
6. Vegetable by B. Chaudhuri, National Book Trust, New Delhi.
7. Important Breeds of Cattle and Buffaloes, ICAR, New Delhi.
8. Hand Book of Agriculture, ICAR, New Delhi.
9. Hand Book of Animal Husbandry, ICAR, New Delhi.

10. Soils of India, FAI Publication, New Delhi.
11. Plant Breeding, by B.D. Singh, Kalyani Publication, New Delhi.
12. Genetics by P .C. Gupta Rastogi Pub., Meerut (U.P.).
13. The Soil Science by T.D. Biswas and S.K. Mukherjee, Tata McGraw-Hill Pub. Co. Ltd., New Delhi.
14. Hand Book of Horticulture, ICAR, New Delhi.

Instruction-cum-Practical Manual, NCERT, Publications

(i) Agricultural Meteorology	NCERT
(ii) Milk and Milk Products	-do-
(iii) Feeds and Feeding of Dairy animals:	-do-
(iv) Fertilizers and manures	-do-
(v) Soil and properties	-do-
(vi) Plant Propagation	-do-
(vii) Floriculture	-do-
(viii) Fruit Culture	-do-

14. COMPUTER SCIENCE (Code 083)

Learning Objectives:

1. To develop logic for Problem Solving
2. To understand the concept of Object Oriented Methodology
3. To implement Object Oriented Programming using C++
4. To understand the concept of working with Relational Database
5. To understand the basic concept of Computing Logic
6. To understand the basic concepts of Communication and Networking technologies
7. To understand Open Source Software

Competencies:

The student will develop the following proficiency:

1. Identifying Computer Components / Subsystems / Peripherals
2. Problem Solving using Object Oriented Programming
3. Database Handling

Class XI (Theory)

Duration: 3 hours

Total Marks: 70

Unit No.	Unit Name	Periods			Marks		
		Th	Pr	Tot	Th	Pr	Total
1.	COMPUTER FUNDAMENTALS	10	5	15	10	2	12
2.	INTRODUCTION TO C++	10	10	20	10	2	12
3.	PROGRAMMING METHODOLOGY	20	20	40	14	8	22
4.	PROGRAMMING IN C++	60	35	95	36	18	44
		110	70	180	70	30	100

UNIT 1: COMPUTER FUNDAMENTALS

Evolution of computers; Basics of computer and its operation: Functional Components and their inter-connections, concept of Booting.

Software Concepts:

Types of Software - System Software, Utility Software and Application Software;

System Software: Operating System, Compiler, Interpreter and Assembler;

Operating System: Need for operating system, Functions of Operating System (Processor Management, Memory Management, File Management and Device Management), Types of operating system -

Interactive (GUI based), Real Time and Distributed; Commonly used operating systems: UNIX, LINUX, Windows, Solaris, BOSS (Bharat Operating System Solutions); Mobile OS - Android, Symbian.

Illustration and practice of the following tasks using any one of the above Operating Systems:

- Opening/Closing Windows
- Creating/Moving/Deleting Files/Folders
- Renaming Files/Folders
- Switching between Tasks

Utility Software: Anti Virus, File Management tools, Compression tools and Disk Management tools (Disk Cleanup, Disk Defragmenter, Backup)

Application software: Office Tools - Word Processor, Presentation Tool, Spreadsheet Package, Database Management System; Domain specific tools - School Management System, Inventory Management System, Payroll System, Financial Accounting, Hotel Management, Reservation System and Weather Forecasting System

Number System: Binary, Octal, Decimal, Hexadecimal and conversion between two different number systems

Internal Storage encoding of Characters: ASCII, ISCII (Indian scripts Standard Code for Information Interchange), and UNICODE (for multilingual computing)

Microprocessor: Basic concepts, Clock speed (MHz, GHz), 16 bit, 32 bit, 64 bit processors; Types - CISC, RISC

Memory Concepts:

Units: Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte, Peta Byte

Primary Memory: Cache, RAM, ROM

Secondary Memory: Fixed and Removable Storage - Hard Disk Drive, CD/DVD Drive, Pen Drive, Blue Ray Disk

Input Output Ports/Connections: Serial, Parallel and Universal Serial Bus, PS-2 port, Infrared port, Bluetooth, Firewire.

Note : Exploring inside computer system in the computer lab class.

UNIT 2: INTRODUCTION TO C++

Getting Started :

C++ character set, C++ Tokens (Identifiers, Keywords, Constants, Operators), Structure of a C++ Program (include files, main function), Header files - iostream.h, iomanip.h, **cout**, **cin**; Use of I/O operators (<< and >>), Use of endl and setw (), Cascading of I/O operators, Error Messages; Use of editor, basic commands of editor, compilation, linking and execution.

Data Types, Variables and Constants:

Concept of Data types; Built-in Data types: **char**, **int**, **float** and **double**; Constants: Integer Constants, Character constants - \n, \t, \b), Floating Point Constants, String Constants; Access modifier: **const**; Variables of built-in data types, Declaration/Initialisation of variables, Assignment statement; Type

modifier: **signed, unsigned, long**

Operator and Expressions :

Operators: Arithmetic operators (-, +, *, /, %), Unary operator (-), Increment (++) and Decrement (--)
Operators, Relation operator (>, >=, <, <=, =, !=), Logical operators (!, &&, ||), Conditional operator:
<condition>? <if true>:<else>; Precedence of Operators; Automatic type conversion in expressions,
Type casting; C++ shorthands (+=, -=, *=, /=, %=)

UNIT 3: PROGRAMMING METHODOLOGY

General Concepts; Modular approach; Clarity and Simplicity of Expressions, Use of proper Names for identifiers, Comments, Indentation; Documentation and Program Maintenance; Running and Debugging programs, Syntax Errors, Run-Time Errors, Logical Errors

Problem Solving Methodologies: Understanding of the problem, Identifying minimum number of inputs required for output, Writing code to optimizing execution time and memory storage, step by step solution for the problem, breaking down solution into simple steps, Identification of arithmetic and logical operations required for solution, Control Structure: Conditional control and looping (finite and infinite)

UNIT 4: PROGRAMMING IN C++

Flow of control:

Conditional statements: **if-else**, Nested **if**, **switch..case..default**, Nested **switch..case**, **break** statement (to be used in **switch..case only**); Loops: **while**, **do - while** , **for** and Nested loops

Inbuilt Functions

Header file Categorization	Header File	Function
Standard input/output functions	stdio.h	gets (), puts ()
Character Functions	ctype.h	isalnum (), isalpha (), isdigit (), islower (), isupper (), tolower (), toupper ()
String Functions	string.h	strcpy (), strcat (), strlen (), strcmp (), strcmpi (), strrev (), strlen (),strupr (), strlwr ()
Mathematical Functions	math.h	fabs (), pow (), sqrt (), sin (), cos (), abs ()
Other Functions	stdlib.h	randomize (), random (), itoa (), atoi ()

User Defined Functions:

Defining a function; function prototype, Invoking/calling a function, passing arguments to function, specifying argument data types, default argument, constant argument, call by value, call by reference, returning values from a function, calling functions with arrays, scope rules of functions and variables local and global variables.

Relating the Parameters and return type concepts in built-in functions.

Structured Data Type:

Arrays: Introductory to Array and its advantages.

One Dimensional Array : Declaration/initialisation of One-dimensional array, Inputting array elements, Accessing array elements, Manipulation of Array elements (sum of elements, product of elements, average of elements, linear search, finding maximum/minimum value)

Declaration/Initialization of a String, string manipulations (counting vowels/ consonants/digits/special characters, case conversion, reversing a string, reversing each word of a string)

Two-dimensional Array

Declaration/initialisation of a two-dimensional array, inputting array elements Accessing array elements, Manipulation of Array elements (sum of row element, column elements, diagonal elements, finding maximum/minimum values)

User-defined Data Types:

User defined data type

Structure

Defining a Structure (Keyword Structure), Declaring structure variables, Accessing structure elements, Passing structure to Functions as value and reference argument/parameter, Function returning structure, Array of structures, passing an array of structure as an argument/ a parameter to a function

Defining a symbol name using **typedef** keyword and defining a macro using **#define** directive.

Class XI (Practical)

Duration: 3 hours

Total Marks: 30

1. Programming in C++ 10

One programming problem in C++ to be developed and tested in Computer during the examination. Marks are allotted on the basis of following:

Logic : 5 Marks

Documentation/Indentation : 2 Marks

Output presentation : 3 Marks

2. Project Work 8

Problems related to String, Number and Array manipulation

General Guidelines: Initial Requirement, developing an interface for user (it is advised to use text based interface screen), developing logic for playing the game and developing logic for scoring points

1. Memory Game: A number guessing game with application of 2 dimensional arrays containing randomly generated numbers in pairs hidden inside boxes.
2. Cross 'N Knots Game: A regular tic-tac-toe game
3. Hollywood/Hangman: A word Guessing game
4. Cows 'N Bulls: A word/number Guessing game

or

Similar projects may be undertaken in other domains

(As mentioned in general guidelines for project, given at the end of the curriculum in a group of 2-4 students)

3. Practical File 05

- (a) Record of the configuration of computer system used by the student in the computer lab (by exploring inside computer system in the first 2 lab classes).
- (b) Must have minimum 15 programs from the topics covered in class XI course.
 - 5 Programs on Control structures
 - 4 Programs on Array manipulations
 - 4 Programs on String Manipulations
 - 2 Programs on structure manipulations

4. Viva Voce 05

Viva will be asked from the syllabus covered in class XI and the project developed by the student(s).

Class XII (Theory)

Duration: 3 hours

Total Marks: 70

Unit No.	Unit Name	Periods			Marks		
		Th	P	Tot	Th	P	Total
1.	OBJECT ORIENTED PROGRAMMING IN C++	50	35	85	30	16	46
2.	DATA STRUCTURE	30	20	50	14	10	24
3.	DATABASES AND SQL	10	15	25	10	4	14
4.	BOOLEAN ALGEBRA	10	0	10	8	0	8
5.	NETWORKING AND OPEN SOURCE SOFTWARE	10	0	10	8	0	8
		110	70	180	70	30	100

UNIT 1: OBJECT ORIENTED PROGRAMMING IN C++

REVIEW: C++ covered In Class -XI,

Object Oriented Programming:

Concept of Object Oriented Programming - Data hiding, Data encapsulation, Class and Object, Abstract class and Concrete class, Polymorphism (Implementation of polymorphism using Function overloading as an example in C++); Inheritance, Advantages of Object Oriented Programming over earlier programming methodologies,

Implementation of Object Oriented Programming concepts in C++:

Definition of a class, Members of a class - Data Members and Member Functions (methods), Using Private and Public visibility modes, default visibility mode (private); Member function definition: inside class definition and outside class definition using scope resolution operator (::); Declaration of objects as instances of a class; accessing members from object(s), Objects as function arguments - pass by value and pass by reference;

Constructor and Destructor:

Constructor: Special Characteristics, Declaration and Definition of a constructor, Default Constructor, Overloaded Constructors, Copy Constructor, Constructor with default arguments;

Destructor: Special Characteristics, Declaration and definition of destructor;

Inheritance (Extending Classes):

Concept of Inheritance, Base Class, Derived Class, Defining derived classes, protected visibility mode; Single level inheritance, Multilevel inheritance and Multiple inheritance, Privately derived, Publicly derived and Protectedly derived class, accessibility of members from objects and within derived class(es);

Data File Handling:

Need for a data file, Types of data files - Text file and Binary file;

Text File : Basic file operations on text file: Creating/Writing text into file, Reading and Manipulation

of text from an already existing text File (accessing sequentially);

Binary File: Creation of file, Writing data into file, Searching for required data from file, Appending data to a file, Insertion of data in sorted file, Deletion of data from file, Modification of data in a file;

Implementation of above mentioned data file handling in C++;

Components of C++ to be used with file handling:

Header file: fstream.h; ifstream, ofstream, fstream classes;

Opening a text file in in, out, and app modes;

Using cascading operators (>> <<) for writing text to the file and reading text from the file; open(), get(), put(), getline() and close() functions; Detecting end-of-file (with or without using eof() function);

Opening a binary file using **in**, **out**, and **app** modes;

open(), **read()**, **write()** and **close()** functions; Detecting end-of-file (with or without using **eof()** function); **tellg()**, **tellp()**, **seekg()**, **seekp()** functions.

Pointers:

Introduction to Pointer, Declaration and Initialization of Pointers; Dynamic memory allocation/deallocation operators: **new**, **delete**; Pointers and Arrays: Array of Pointers, Pointer to an array (1 dimensional array), Function returning a pointer, Reference variables and use of alias; Function call by reference. Pointer to structures: Deference operator: *, ->; self referencial structures;

UNIT 2: DATA STRUCTURES

Introduction to data structure, primitive and non-primitive data structure, linear and non-linear structure, static and dynamic data structure.

Arrays:

One and two Dimensional arrays: Sequential allocation and address calculation;

One dimensional array: Traversal, Searching (Linear, Binary Search), Insertion of an element in an array, deletion of an element from an array, Sorting (Insertion, Selection,

Two-dimensional arrays: Traversal, Finding sum/difference of two NxM arrays containing numeric values, Interchanging Row and Column elements in a two dimensional array;

Stack (Array and Linked implementation of Stack):

Operations on Stack (PUSH and POP) and its Implementation in C++, Converting expressions from INFIX to POSTFIX notation and evaluation of Postfix expression;

Queue: (Circular Array and Linked Implementation):

Introduction to Queue (FIFO - First in First out operations)

Operations on Queue (Insert and Delete) and its Implementation in C++.

UNIT 3: DATABASES AND SQL

Database Concepts: Introduction to data base concepts and its need.

Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;

Relational algebra: Selection, Projection, Union and Cartesian product;

Structured Query Language:

General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data types: NUMBER/DECIMAL, CHARACTER/VARCHAR/VARCHAR2, DATE;

SQL commands:

CREATE TABLE, DROPTABLE, ALTER TABLE, UPDATE...SET..., INSERT, DELETE;

SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BY;

SQL functions: SUM, AVG, COUNT, MAX and MIN;

Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian Product and Union

Note: Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.

UNIT 4: BOOLEAN ALGEBRA

Role of Logical Operations in Computing.

Binary-valued Quantities, Logical Variable, Logical Constant and Logical Operators: AND, OR, NOT; Truth Tables; Closure Property, Commutative Law, Associative Law, Identity law, Inverse law, Principle of Duality, Idem potent Law, Distributive Law, Absorption Law, Involution law, DeMorgan's Law and their applications;

Obtaining Sum of Product (SOP) and Product of Sum (POS) form from the Truth Table, Reducing Boolean Expression (SOP and POS) to its minimal form, Use of Karnaugh Map for minimization of Boolean expressions (up to 4 variables);

Application of Computing Logic:

Building up logic circuits using basic Logic Gates (NOT, AND, OR, NAND, NOT)

Use of Boolean operators (NOT, AND, OR) in SQL SELECT statements

Use of Boolean operators (AND, OR) in search engine queries.

UNIT 5: COMMUNICATION AND OPEN SOURCE CONCEPTS

COMMUNICATION TECHNOLOGIES

Evolution of Networking: ARPANET, Internet, Interspace

Different ways of sending data across the network with reference to switching techniques (Circuit, Message and Packet switching)

Data Communication terminologies: Concept of Channel, Baud, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, kbps, Mbps, Gbps, Tbps)

Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link

Network devices: Modem, RJ45 connector, Ethernet Card, Hub, Switch, Gateway

Network Topologies and types: Bus, Star, Tree; PAN, LAN, WAN, MAN

Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, Remote Login (Telnet), Internet

Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, WLL, 1G, 2G and 3G

Electronic mail protocols such as SMTP, POP3

Protocols for Chat and Video Conferencing

VoIP protocols such as Wi-Fi and WiMax

Network Security Concepts:

Threats and prevention from Viruses, Worms, Trojan horse, Spams

Use of Cookies, Protection using Firewall;

India IT Act, Cyber Law, Cyber Crimes, IPR issues, Hacking.

WebServices:

WWW, Hyper Text Markup Language (HTML), eXtensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Protocol Address; Website, Web browser, Web Servers; Web Hosting, Web Scripting - Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking)

Open Standards

Introduction to open standards and its advantage in development of inter-operable environment.

Open Source Concepts

Proprietary and Open Source Software, Freeware, Shareware, FLOSS/FOSS, GNU,FSF, OSI, W3C

Class XII (Practicals)

Duration: 3 hours

Total Marks: 30

1. Programming in C++ **10**

One programming problem in C++ to be developed and tested in Computer during the examination. Marks are allotted on the basis of following:

Logic	:	5 Marks
Documentation/Indentation	:	2 Marks
Output presentation	:	3 Marks

Notes: The types of problems to be given will be of application type from the following topics

- Arrays (One dimensional and two dimensional)
- Array of structure
- Stack using arrays and linked implementation
- Queue using arrays (circular) and linked implementation
- Binary File operations (Creation, Displaying, Searching and modification)
- Text File operations (Creation, Displaying and modification)

2. SQL Commands **05**

Five Query questions based on a particular Table/Reaction to be tested practically on Computer during the examination. The command along with the result must be written in the answer sheet.

3. Project Work **05**

The project has to be developed in C++ language with Object Oriented Technology and also should have use of Data files. (The project is required to be developed in a group of 2-4 students)

- Presentation on the computer
- Project report (Listing, Sample, Outputs, Documentation)
- Viva

4. Practical File **05**

Must have minimum 20 programs from the following topics

- Arrays (One dimensional and two dimensional, sorting, searching, merging, deletion & insertion of elements)
- Arrays of structures,
- Stacks using arrays and linked implementation
- Queues using arrays (linear and circular) and linked implementation
- File (Binary and Text) operations (Creation, Updation, Query)
- Any computational based problems

15 SQL commands along with the output based on any table/relation: **3 Marks**

5. Viva Voce

05

Viva will be asked from syllabus covered in class XII and the project developed by student.

GUIDELINES FOR PROJECTS (Class XI and XII)

1. Preamble

- 1.1 The academic course in Computer Science includes one Project in each year. The Purpose behind this is to consolidate the concepts and practices imparted during the course and to serve as a record of competence.
- 1.2 A group of 2-4 students as team may be allowed to work on one project.

2. Project content

- 2.1 Project for class XI can be selected from the topics mentioned in the syllabus or domains on the similar lines
- 2.2 Project for class XII should ensure the coverage of following areas of curriculum:
 - a. Problem Solving
 - b. Data Structure
 - c. Object Oriented Programming in C++
 - d. Data File Handling

Theme of the project can be

- Any subsystem of a System Software or Tool
 - Any Scientific or a fairly complex algorithmic situation.
 - School Management, Banking, Library information system, Hotel or Hospital management system, Transport query system
 - Quizzes/Games;
 - Tutor/Computer Aided Learning Systems
- 2.3 The aim of the project is to highlight the abilities of algorithmic formulation, modular programming, optimized code preparation, systematic documentation and other associated aspects of Software Development.
 - 2.4 The assessment would be through the project demonstration and the Project Report, which should portray Programming Style, Structured Design, Minimum Coupling, High Cohesion, Good documentation of the code to ensure readability and ease of maintenance.

Suggested Reference Books

Computer Fundamentals and Boolean Algebra

1. Rajaraman, FUNDAMENTALS OF COMPUTERS 4th Edition, Prentice Hall of India.
2. Peter Norton, INTRODUCTION TO COMPUTER 4th Edition, Tata McGraw Hill
3. Thomas C. Barteo, DIGITAL COMPUTER FUNDAMENTALS, McGraw Hill International.

Problem Solving and Programming in C++

Note: Prior knowledge of C is not required in the learning of C++, even though reference about C are made in some of the books.

1. Robert Lafore, OBJECT ORIENTED PROGRAMMING IN TURBO C++, Galgotia Publications Pvt. Ltd.
2. David Parsons, OBJECT ORIENTED PROGRAMMING WITH C++, BPB Publications.
3. Bjarne Stroustrup, THE C++ PROGRAMMING LANGUAGE, Addison Wesley.

Data Structures

1. M.A. Weiss, Data Structures and Algorithm Analysis in C++. the Benjamin/Cummings Pub. Co., Inc.
2. Sartaj & Sahni, Fundamentals of Data Structure, Galgotia Book Source

Database Management System and SQL

1. C.J. Date, DATABASE PRIMER, Addison Wesley.

Computer Network

1. A.S. Tanenbaum, Computer Network 4th Edition, Prentice Hall of India P. Ltd.
2. Williams Stalling, Data Communication and Networks 5th Edition, Prentice Hall of India P. Ltd.
3. Hancock, Network Concept and Architectures, BPB Publications.

15. INFORMATICS PRACTICES (Code 065)

Learning Objectives:

- To gain working knowledge of a computer system and peripherals
- To understand the application development process.
- To gain programming skills in front-end development
- To gain skills in Relational Database Creation and Management.

Competencies:

- Sound knowledge of computer system
- Familiarity with Application Development process using simple IDEs
- Ability to use, develop & debug programs independently.
- Ability to store and retrieve data using an RDBMS.

Class XI

Unit	Topic	Period		Marks	
		Theory	Practical	Theory	Practical
1.	INTRODUCTION TO COMPUTER SYSTEMS	15	05	10	02
2.	INTRODUCTION TO PROGRAMMING	40	35	25	16
3.	RELATIONAL DATABASE MANAGEMENT SYSTEM	40	35	30	6
4.	IT APPLICATIONS	5	15	5	6
		100	90	70	30

UNIT 1: INTRODUCTION TO COMPUTER SYSTEMS

Hardware Concepts:

Computer organization (basic concepts): CPU, Memory (RAM and ROM), I/O devices, communication bus, ports (serial, parallel), device specific ports.

Input devices: Keyboard, Mouse, Light pen, Touch Screen, Graphics Tablets, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, web camera;

Output Devices: Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Desk jet/ Inkjet/ Bubble jet Printer, Laser Printer), Plotter, Speaker;

Secondary Storage Devices: Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD), Flash Drive, Memory cards; Comparative properties of storage media;

Memory Units: Bit (Binary Digit)/Byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)

Security of computer system: sources of attack and possible damages, malware-virus and related entities - virus, trojan, spyware, worms, propagation of these entities, virus detection using a tool, digital certificates, digital signature, cookies, firewall, password, file access permissions

Types of Software:

- (a) System Software
 - (i) Operating systems, Need for operating system, major functions of Operating System.
 - (ii) Language Processors : Assembler, Interpreter and Compiler.

- (b) Utility Software: Compression tools, disk defragmenter, anti-virus.
- (c) Application Software :
 - (i) General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System.
 - (ii) Specific Purpose application Software: Inventory Management System, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System etc.
- (d) Developer Tools : Interpreter / Compiler, Integrated Development Environment (IDE)

UNIT 2: INTRODUCTION TO PROGRAMMING

Getting started with Programming using IDE

- Introduction, Rapid Application Development using IDE (Integrated Development Environment); Familiarization of IDE using basic Interface components-Label, Text Field, Test Area, Button, Checkbox, Radio Button. (As per appendix B).
- Developing General Application (As per the guidelines at appendix B) - Getting Familiar with Java Swing User Interface components - Frame, Dialog, Option Pane, Label, Text Field, Password Field, Text Area, Button, Check Box, Radio Button, Combo Box, List, Table.
- Basic component handling methods and properties:
Set Text, Get Text, Add, isSelected, setSelected.

Programming Fundamentals

Data Types: Concept of data types; Built-in data types - byte, short, int, long, float, double, char, String, boolean

Variables:

Need to use variable, Declaring Variables, Variable Naming Convention, Assigning value to Variables;

Integer object method: parseInt

Double object method: parse double, parse float

Control Structures:

Decision Structure - if, if-else, switch;

Looping Structure- while, do-while, for;

Programming Guidelines:

General Concepts; Modular approach; Stylistic Guidelines: Clarity and Simplicity of Expressions, Names, Comments, Indentation; Running and debugging programs, Syntax Errors, Run-Time Errors, Logical Errors.

Problem Solving Methodology : Understanding of the problem, Identifying minimum number of inputs required for output, breaking down problem into simple logical steps.

UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM

Database Management System

Introduction to database concepts: Date base, Relation/Table, attribute/field, Tuple / Rows;

Data Types - Number, Character and Date

Key - Primary Key, Candidate key, Alternate key, Foreign key;

Examples of common Database Management System - MySQL, INGRES, POSTGRES, ORACLE, DB2, MS SQL, Sybase.

Introduction to MySQL

(ANSI SQL 99 standard commands)

Classification of SQL Statements:

DML - SELECT, INSERT, UPDATE, DELETE

DDL - CREATE, DROP, ALTER

Creating and using a database: SQL CREATE command to create a database, USE command to select a database.

Creating a table: CREATE command to create a table, DESC command to display a table structure, INSERT command for: Inserting New Rows, Inserting New Rows with Null Values, Inserting NUMBER, CHAR and DATE Values.

Displaying table data: SELECT command for Selecting all the Columns, Selecting Specific Column, Using Arithmetic Operators, Operator Precedence, Defining and using column Alias, Eliminating duplicate values from display (DISTINCT Keyword), Limiting Rows during selection (using WHERE clause), Working with Character Strings and Dates, Working with NULL values.

- Using Comparison Operators - =, <, >, <=, >=, <>, BETWEEN, IN, LIKE (%,_), Logical Operators - AND, OR, NOT, Operator Precedence.
- ORDER BY Clause, Sorting in Ascending/Descending Order, Sorting By Column Alias Name, Sorting On Multiple Columns.

Manipulating Data of a Table/Relation: Update command to Change Existing Data of a Table, Delete command for removing row(s) from a Table.

Restructuring a table: ALTER TABLE for adding new column(s), deleting a column.

Functions in MySQL:

String Function - CHAR(), CONCAT(), INSTR(), LCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(), UCASE(), UPPER().

Mathematical Functions - POWER(), ROUND(), TRUNCATE().

Date and Time Functions - CURDATE() , DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE().

UNIT 4: IT APPLICATIONS

e-Governance - Definition, Benefits to citizens, e-Governance websites and their salient features and societal impacts; e-Governance challenges.

e-Business - Definition, Benefits to customers and business, e-Business websites and their salient features and societal impacts; e-Business challenges.

e-Learning - Definition; Benefits to students (Learners), Teachers (Trainers) and School (Institution) Management; e-Learning websites and their salient features and societal impacts; e-Business Challenges.

In each of the above domains, identify at least two real-life problems, list the inpt(s) required for the expected outpt(s), and describe the problem solving approach.

Class XI (Practical)

Class XI

S.No.	Description	Marks
1	Problem Solving using Java	12
2	SQL Queries	4
3	Practical Record <ul style="list-style-type: none">• Productivity Tools• Simple Problems using Java• SQL Queries• IT Applications	8
4	Viva Voce	6
	Total	30

Evaluation of Practical Examination

1. Problem solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file. Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory. Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- Print out of at least 2 documents with use of Different Style, Page Setting/Formatting, Bulleting/Numbering and Tabulation
- Print out of at least 2 spreadsheets with simple calculations, basic functions, macros and graphs/charts
- At least 10 solutions of simple problems using IDE based Java (refer to Appendix 'A' & 'B')
- At least 3 IT applications - problems solving framework
- At least 20 SQL queries

4. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session. Out of 6 marks, 2 marks are allotted to test student's understanding of basic computer hardware and their functions.

Class XII (Theory)

Class XII

Unit	Topic	Period		Marks	
		Theory	Practical	Theory	Practical
1	NETWORKING AND OPEN STANDARDS	20	4	10	2
2	PROGRAMMING	42	40	25	16
3	RELATIONAL DATABASE MANAGEMENT SYSTEM	42	36	30	8
4	IT APPLICATION	6	20	5	4
		110	100	70	30

UNIT 1: NETWORKING AND OPEN STANDARDS

Computer Networking:

- Networking : a brief overview.
- Communication Media: Wired Technologies - Co-Axial, Ethernet Cable, Optical Fiber, Wireless Technologies - Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link.
- Network Devices : Hub, Switch, Repeater, Gateway and their functions
- Types of Network: LAN, MAN, WAN, PAN
- Network Topologies: Star, Bus, Tree
- Network Protocols: HTTP, TCP/IP, PPP
- Identifying computers and users over a network: Basic concept of domain name, MAC (Media Access Control), and IP Address, domain name resolution.
- Networking Security: denial of service, intrusion problems, snooping.

Open Source Concepts:

- Open Source Software (OSS), common FOSS/FLOSS examples (e.g. Gnu/Linux, Firefox, OpenOffice, Java, netbeans, MySQL), common open standards (WWW, HTML, XML, ODF, IP, TCP).
- Indian Language Computing: Character encoding, UNICODE, different types of fonts (open type vs true type, static vs dynamic), Entering Indian Language Text - Phonetic and key map based.

UNIT 2: PROGRAMMING

Review of Class XI;

Programming Fundamentals

(Refer to Appendix A for sample guidelines of GUI Programming, and Appendix B for Swing Control Methods & Properties)

Basic concept of Access specifier for classes, Members and methods

Basic concept of Inheritance.

Commonly used libraries: String class and methods: toString(), concat(), length(), toLowerCase(), toUpperCase(), trim(), substring()

Math class methods: pow(), round()

Accessing MySQL database using ODBC/JDBC to connect with database.

Web application development: URL, Web Server, Communicating with the web server, concept of Client and Server Side.

HTML based web pages covering basic tags - HTML, TITLE, BODY, H1..H6, Paragraph (P), Line Break (BR), Section Separator (HR), FONT, TABLE, LIST (UL, OL), FORM;

Creating and accessing static pages using HTML and introduction to XML

UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM

Review of RDBMS from Class XI

Database Fundamentals

Concept of Database Transaction, Committing and revoking a Transaction using COMMIT and REVOKE,

Grouping Records: GROUP BY, Group functions - MAX(), MIN(), AVG(), SUM(), COUNT(); using COUNT(*), DISTINCT clause with COUNT, Group Functions and Null Values,

Displaying Data From Multiple Tables: Cartesian product, Union, concept of Foreign Key, Equi-Join

Creating a Table with PRIMARY KEY and NOT NULL constraints, Viewing Constraints, Viewing the Columns Associated with Constraints using DESC Command;

ALTER TABLE for deleting a column, ALTER TABLE for modifying data types of a column

For adding a constraint enabling constraints, dropping constraints.

DROP Table for deleting a table;

UNIT 4: IT APPLICATIONS

Front-end Interface - Introduction; content and features; identifying and using appropriate component (Text Box, Radio Button, CheckBox, List etc. as learnt in Unit-2 (Programming) for data entry, validation and display;

Back-end Database - Introduction and its purpose; exploring the requirement of tables and its essential attributes;

Front-End and Database Connectivity - Introduction, requirement and benefits

Demonstration and development of appropriate Front-end interface and Back-end Database for e-Governance, e-Business and e-Learning applications

Impact of ICT on Society : Social and Economics benefits and Infomania.

Class XII (Practical)

Class XII

S.No.	Description	Marks
1	Problem Solving using Java	10
2	SQL Queries	4
3	Practical Record <ul style="list-style-type: none"> • Simple Problems using IDE Java • SQL Queries • IT Applications 	6
5	Project Work	4
4	Viva Voce	6
Total		30

Evaluation of Practical Examination

1. Problem Solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file.

Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session.

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year alongwith course coverage in theory.

Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- At least 12 solutions of simple problems and 2 IT applications using IDE based Java (refer to Appendix 'A' & 'B')
- At least 24 SQL queries based on one and/or two tables
- Solution of at least 2 simple problems incorporating Java Application & Database connectivity

4. Project File

Students in group of 2-3 are required to work collaboratively to develop a project using Programming and Database skills learnt during the course. The project should be an application in any one of the following domains, - e-Governance, e-Business and e-Learning with GUI front-end corresponding database at the back-end.

5. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session

CBSE Curriculum 2013

Appendix 'A'

Sample Guidelines for GUI Programming

1. To display a message using Label, TextBox, MessageDialog using simple GUI applications
2. To concatenate two text entries and display using simple GUI application
3. To perform a simple arithmetic operation (+, -, *, /) and display the result in MessageDialog or TextBox using simple GUI application
4. To perform simple arithmetic operation (+, -, *, /) and display the result in TextBox using simple GUI application
5. To make simple decision making (if statement) solution and display relevant message using GUI application (Example - Problems related to Eligibility for a given value of Age, "Profit" or "Loss" messages for given values of Cost Price and Sale Price, Grade Display for given values of Marks of students etc.)
6. To create a simple GUI application to perform both arithmetic and logical operation together (Example - Total, Average and Grade calculation for given marks, Salary Calculation on different criteria)
7. To create a simple GUI application to perform an operation based on the criteria input by the user in a CheckBox or a RadioButton.

(Example 1: Find the Discount of an item on the basis of Category of item [Electrical Appliance/ Electronic Gadget/Stationary specified using a Radio button] and its Cost [Below 1000/Above 1000/Equal to 1000 specified using a Radio button]).

(Example 2: Calculate the incentive of a Sales Person on the basis of his Sales Amount, Customer Feedback, Count of Customer specified using CheckBox)
8. To create a simple GUI application to change the property of a swing element based on the selection made by the user

(Example 1: To change the background or Foreground color of any of the Swing elements of the form based on the color selected from a list)

(Example 2: To change the foreground and background color of a label based on the values input/stored in a combo box)
9. To create a simple GUI application for repeatedly doing a task based on the user input.

(Example: To display the multiplication table of a number input by the user)
10. To store the data (Admission No., Name, Date of Birth, Class and Section) of 10 students in a table (Table) and find total number of students in each class and section.

Sample Guidelines for Connectivity Problems

11. To create a simple GUI application that counts and displays the number of records present in a database table.
12. To create a simple GUI application that displays the records of a database table in a tabular format (using jTable) on the GUI form.
13. To create a simple GUI application that displays the records of a database table in a tabular format (using jTable) on the GUI form based on a criteria input by the user.
14. To create a simple GUI application to perform a calculation based on a value retrieved from database table and a value entered by the user in a GUI application.

Appendix 'B'

Swing Control Methods & Properties

Class	jButton
Swing Control	jButton1, jButton2, jButton3, ... (default)
Methods	getText (), setText ()
Properties	Background, Enabled, Font, Foreground, Text, Label
Class	JLabel
Swing Control	jLabel1, jLabel2, jLabel3, ... (default)
Methods	getText (), setText ()
Properties	Background, Enabled, Font, Foreground, Text
Class	JTextField
Swing Control	jTextField1, jTextField2, jTextField3, ... (default)
Methods	getText (), isEditable (), isEnabled (), setText ()
Properties	Background, Editable, Enabled, Font, Foreground, Text
Class	JRadioButton
Swing Control	jRadioButton1, jRadioButton2, jRadioButton3, .. (default)
Methods	getText (), setText (), isSelected (), setSelected ()
Properties	Background, Button, Group, Enabled, Font, Foreground, Label, Selected, Text
Class	JCheckBox
Swing Control	jCheckBox1, jCheckBox2, jCheckBox3, ... (default)
Methods	getText (), setText (), isSelected (), setSelected ()
Properties	Button Group, Font, Foreground, Label, Selected, Text

Class	J Button Group
Swing Control	J Button Group1, (default)
Methods	
Properties	Add
Class	JComboBox
Swing Control	jComboBox1, jComboBox2, jComboBox3, ... (default)
Mehtods	getSelectedItem (), getSelectedIndex (), setModel ()
Properties	Background, ButtonGroup, Editable, Enabled, Font, Foreground, Model, SelectedIndex, SelectedItem, Text.
Class	JList
Swing Control	jList1, jList2, jList3,... (default)
Methods	getSelectedValue ()
Properties	Background, Enabeld, Font, Foreground, Model, SelectedIndex, SelectedItem, Selection Mode, Text
Class	JTable
Swing Contorl	jTable1, jTable2, jTable3, ... (default)
Methods	addRow (), getModel ()
Properties	model
Class	JOptionPane
Methods	showMessageDialog (), showInputDialog (), showConfirmDialog ()
Class	DefaultTableModel
Methods	getRowCount (), removeRow (), addRow, ()

Commonly used Mehtods

Class	Methods
Integer	parsoInt (), toDouble (), toString ()
String	concat (), length (), substring (), toDouble (), toLowerCase, (), toUpperCase (), trim ()
Double	parseDouble (), toString (), toInt ()
Math	pow (), round ()

Database Connectivity Mehtods

Class	Methods
Connection	createStatement (), close ()
DriverManager	getConnection ()
Statement	executeQuery ()
ResultSet	next (), first (), last (), getString ()
Exception	getMessage ()
System	exit ()

Note: The visual properties of any of the elements and Data connectivity methods (the properties/ methods, which are not highlighted in the above tables) will not be tested in the Theory examination but may be used by the student in the Practicals and Projects.

References

Suggested Reference Books

Introduction to Computer System

1. Rajaraman, FUNDAMENTALS OF COMPUTERS 4th Edition, Prentice Hall of India.
2. Peter Norton, INTRODUCTION TO COMPUTER 4th Edition, Tata McGraw Hill

Introduction to Programming

1. Heiko Böck, The Definitive Guide to the NetBeans Platform 6.5, Apress

Relational Database Management System and SQL

1. Lerry Ulman, MYSQL Database, Pearson Education, 2008

Computer Network

1. A.S. Tanenbaum, Computer Network 4th Edition, Prentice Hall of India P. Ltd.
2. Williams Stalling, Data Communication and Networks 5th Edition, Prentice Hall of India P. Ltd.

Suggested Websites on e-Governance

- www.mit.gov.in
- www.esevaonline.com
- bhoomi.kar.nic.in
- aponline.gov.in
- www.chips.nic.in

Suggested Websites on e-Business

- www.salesforce.com

- www.zoho.com
- www.itcportal.com

Suggested Websites on e-Learning

- www.moodle.org
- www.atutor.ca
- www.w3schools.com
- portal.unesco.org

16. MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Learning Objectives:

1. To develop proficiency in Webpage Development.
2. To be able to write server and client sides scripts and manage websites.
3. To design a web page using Image, Audio and Video Editing tools.
4. To understand the concept of Open Source Software.

Competencies:

The student will develop proficiency in the following:

1. Managing a web-site with server/client side script.
2. Handling web based Multimedia content in Webpage.

Class XI (Theory)

Duration: 3 hours

Total Marks: 70

Unit No.	Unit Name	Periods			Marks		
		Th	Pr	Tot	Th	Pr	Total
1.	INTRODUCTION TO COMPUTER SYSTEMS	15	2	17	15	2	17
2.	WEB DEVELOPMENT	40	30	70	25	10	35
3.	WEB SCRIPTING	30	25	55	20	8	28
4.	MULTIMEDIA AND AUTHORIZING TOOLS	25	13	38	10	10	20
		110	70	180	70	30	100

(Theory)

Unit 1: Introduction to Computer System

Hardware Concepts :

Computer organization (basic concepts): CPU, Memory (RAM and ROM), I/O devices;

Input Devices - Keyboards, Mouse, Light Pen, Touch Screen, Graphics Tablet, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, web camera.

Output Devices - Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Desk Jet/Inkjet/Bubble Jet Printer, Laser Printer), Plotter, Speaker.

Secondary Storage devices - Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD), Flash Drive, Memory Cards.

Memory Units : Bit, Byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)

Types of Software: System Software

Operating systems : Need for operating system, major functions of Operating System; PC/Server based OS - Linux, Bharti OOS, Windows; Mobile OS - Android, Symbian

Language Processors: Assembler, Interpreter and Compiler

Utility Software : Compression Tools, Disk Defragmenter, Anti-virus

Application Software:

General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System.

Specific Purpose Application software : Inventory Management system, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System etc.

GUI Operating System

Note: Students/Teachers can also perform similar operation on any operating system LIKE Linux, Bharti OOS, windows. It is advised that the teacher while using any one operating system, give a demonstration of equivalent features for the other operating system.

GUI Components

General features, Elements of Desktop - Taskbar, Icon, Start button, Shortcuts, Folder, Recycle Bin, My Computer,

Start Menu: Program, Documents, Settings, Find/Search, Help, Run, ShutDown/Logoff;

Customization of Taskbar, Start menu, Display properties (Wallpaper, Font Settings, Color Settings, Screen Savers);

Program Menu: Accessories - Calculator, Text editor, Image editor, Entertainments (Sound Recorder, Media Player);

Browsers: Mozilla Firefox, Google Chrome, Internet Explorer, Netscape Navigator;

Control Panel: Add new hardware; Add new software, Printer installation, Date/Time settings, Mouse and Regional Settings;

Unit 2: Web Page Development

www, Hyper Text Transfer Protocol (HTTP), File Transfer Protocol (FTP), Domain Names, URL, IP Address, Website, Web browser, Web Server, Web Hosting.

HTML

Introduction, content creation, HTML, creating HTML document using a Text Editor, Saving HTML document, Editing a HTML document, Viewing HTML document in a Web Browser, Switching between text editor and web browser windows to reflect changes.

Web Page Authoring Using HTML:

Basic Concepts:

Concept of tags and attributes, Difference between Container tag and Empty tag.

Structural Tags of HTML:

<HTML>, <HEAD>, <TITLE>, <BODY>;

Attributes of <BODY> (BGCOLOR, BACKGROUND, LINK, ALINK, VLINK)

Inserting Breaks:

Line break
, Page break <P> Attributes of <P> (ALIGN), Section break <HR>; Attributes of <HR> (WIDTH, ALIGN, SIZE, NOSHADE, COLOR)

Formatting Tags of HTML:

<SMALL>, <BIG>, , <I>, <U>, , <BLOCKQUOTE>, <PRE>, <SUB>, <SUP>, <STRIKE>, <ADDRESS>, Adding Comments in HTML (<!-- -->),

Heading tag (<H1> to <H6>); Attributes of Heading tag (ALIGN),

 tag; Attributes of (SIZE, COLOR, FACE).

Creating Lists:

Ordered List : , , Attributes of (TYPE, START, VALUE);

Unordered Lists : , , Attributes of (TYPE - Disc, Circle, Square);

Definition List: <DL>, <DT>, <DD>

Creating Links:

Ordered List: , , Attributes of (TYPE, START, VALUE);

Unordered List : , , Attributes of (TYPE - Disc, Circle, Square);

Definition List : <DL>, <DT>, <DD>

Creating Links: Internal linking using <A NAME> and <A HREF>; External linking using <A HREF>; E-Mail linking using <A HREF>;

Concept of URL; Absolute Links & Relative Links

Inserting Images: Inserting inline Images using ; Attributes of (SRC, ALIGN, WIDTH, HEIGHT, ALT, BORDER)

Adding Music : Adding music using <A HREF>, adding music using <EMBED>; Attributes of <EMBED> (SRC, WIDTH, HEIGHT, LOOP, AUTOSTART, HIDDEN)

Creating Tables:

Creating Table using <TABLE>; Attributes of <TABLE> (BORDER, BGCOLOR, BACKGROUND, CELLSPACING, CELLPADDING, WIDTH, HEIGHT)

Creating rows and columns in table using <TR>, <TD>, <TH>; Attributes of <TR>, <TD>, <TH> (ALIGN, VALIGN, COLSPAN, ROWSPAN)

Adding headings for a table using <CAPTION>; Attribute of <CAPTION> (ALIGN)

Frames:

Dividing the window into two or more frames using <FRAME> and <FRAMESET>, Use of percentage dimensions and relative dimensions while dividing the window; use of <NOFRAMES>, </NOFRAMES>;

Attributes of <FRAME> (SRC, NAME, FRAMEBORDER, MARGINHEIGHT, MARGINWIDTH, SCROLLING, NORESIZE);

Attributes of <FRAMESET> (ROWS, COLS, BORDER, FRAMEBORDER);

Forms :

Forms are used for data collection which can be written to a file, can be submitted to a database or can be emailed;

Creating Forms using <FORM>, Attributes of <FORM> (NAME, ACTION, METHOD),

Creating Form Interface elements - text box, password box, checkbox, radio button, button, submit button, reset button, hidden, file using the <INPUT>; Attributes of <INPUT> applicable with different interface elements (NAME, SIZE, VALUE, ALIGN, MAXLENGTH, CHECKED, TYPE); multiline text area using <TEXTAREA>, Attributes of <TEXTAREA> (NAME, ROWS, COLS, WRAP); dropdown list of scroll list using <SELECT> and <OPTION>; Attributes of <SELECT> (NAME, SIZE, MULTIPLE/SINGLE)

Document Object Model

Concept and Importance of Document Object Model, Dynamic HTML documents;

Cascading Style Sheets

Introduction to Cascading Style Sheet (CSS): Creating inline, embedded and external cascading style sheets using <STYLE>, <DIV>, and <LINK>; Attribute of <DIV> and (STYLE); Attributes of <LINK> (REL, TYPE, HREF);

Font Properties: FONT-FAMILY, FONT-STYLE, FONT-SIZE, FONT-VARIANT, FONT-WEIGHT and COLOR

Text Properties: COLOR, WORD-SPACING, LETTER-SPACING, TEXT-DECORATION, VERTICAL ALIGN, TEXT-TANSFORM; TEXT-ALIGN, TEXT-INDENT, LINE-HEIGHT;

Background Properties: BACKGROUND-COLOR, BACKGROUND-IMAGE, BACKGROUND-REPEAT;

Margin Properties: MARGINS (all values);

Padding Properties: PADDING (all values);

Border Properties: BORDER (all values);

Positioning: Absolute and Realtive

Additional Features: Assigning Classes;

XML-eXtensible Markup Language: Introduction, Features, Advantages;

Structure of XML: Logical Structure, Physical Structures;

XML Markup: Element Markup i.e. (<foot>hello</foo>), Attribute Markup i.e. (<element.name property = "value">);

Naming Rules: used for elements, attributes and descriptors;

Comments of XML;

Entity Declarations: <!ENTITY name "replacement text">;

Element Declaration : <!ELEMENT name.content>;

Empty Elements: <!ELEMENT empty.element EMPTY>;

Unrestricted Elements : <!ELEMENT any.element ANY>;

Element Content Model : Element Sequences i.e. <!ELEMENT counting (first, second, third, fourth)>;

Element Choices <!ELEMENT choose (this.one | that.one)>; Combined Sequences and Choices;

Element Occurrence Indicators :-?, %, +

Character Content: PCDATA (Parseable Character data) <!ELEMENT text (#PCDATA),

Document Type Declaration (DTD) and Validation;

Developing a DTD: Modify and existing XML, Developing a DTD from XML Code, either automatically or manually;

Viewing XML in Internet Explorer, Viewing XML using the XML Data Source Object;

Unit 3: Web Scripting

VBScript

Introduction to client side scripting, Adding VBScript code to a web page using <SCRIPT> tag;

VBScript Variables:

Declaring variable, Naming restrictions, Assigning value to variables, Scalar variables and 1-D Array), VBScript Constants,

VBScript Operators:

Arithmetic: +, - (Unary and Binary), *, /, \ (integer division) mod, ^;

Comparison: <, >, <=, >=, <>, =; Logical: AND, OR, NOT; String Operator: & or + (for Concatenation);

Operator Precedence

MsgBox in Vbscript:

Functions of message box (Prompt, Buttons, Title), Return values of MsgBox function;

Control Structures in VBScript:

Conditional statements:

If..Then.. Else...End if, Select case;

Loops:

Do loops, While... Wend, For.. Next, For Each..Next;

VBScript Procedures and Functions(User Defined):

Sub procedures, Functions, passing parameters/arguments;

Using VBScript with HTML form controls;

Inbuilt Functions of VBScript:

Conversion functions: Abs(), CBool(), CByte(), CInt(), CStr(), CSng(), CLng(), CDate();

String Manipulation Functions: Ucase(), LCase(), Len(), Left(), Right(), Mid(), LTrim(), InStr(), RTrim(), LTrim();

Time & Date Functions: Date (), Day (), Hour (), Left (), Len (), Minute (), Month (), Monthname (), Now ();

Unit 4: Multimedia And Authoring Tools

Concept of Multimedia: Picture/Graphics, Audio, Video;

Basic concepts of Images: Digital Images and Digital Image Representation

Image Formats: TIFF, BMP, JPG/JPEG, GIF, PIC, PDF, PSD;

Applications: Poster Design, Still pictures, colored layout, Designing of - Books, magazines brochures, children's literature, narrative text handling, scripts in Indian Languages, picture books, comics, illustrations with photographs, scientific illustrations, conceptual illustrations, handling of assignment for the market;

Image Scanning with the help of scanner: Setting up Resolution, Size, File formats of images; image preview, Bitonal, Grey Scale and color options, Capturing images using scanners;

Animation, Morphing and Applications

Graphic Tools: Image Editing Software (Photoshop/ Coreldraw), GIMP

Basic Concepts of Image Creation: An Introduction, creating, opening and saving files, Menus, Toolbox, Color control icons, Mode control icons, Window controls icons; creating new images,

Image Handling: Cropping, adjusting image size, increasing the size of the work canvas, saving an image;

Operations on Layers: Adding new layers, dragging and pasting selected objects on to layers, dragging layers between files, Viewing, hiding, editing, moving, copying, duplicating, deleting, merging layers, rotating selections, scaling an object, preserving layers, , using adjustment layers;

Channels and Masks: Channel palette, showing and hiding channels, splitting channels in to separate image, merging channels, creating a quick mask, editing masks using quick mask mode;

Painting and Editing: Brushes palette, brush shape, creating and deleting brushes, creating custom brushes, setting brush options, saving, loading and appending brushes, Options palette; Opacity, pressure, or exposure, paint fade-out rate, making, adjusting, moving, copying extending, reducing , pasting and deleting selections using selection tools, softening the edges of a selection, hiding a selection border;

Sound: Recording Sound using Sound Recorder (Capture), Sound capture through sound editing software (ex: Sound forge), Sound editing, Noise correction, Effect enhancement ;

Sound File Format: AIFF (Audio Input File Format from Apple Mac) , MIDI, WAV, MP3, ASF (Streaming format from Microsoft). Importing audio files from external devices and saving them.

Sound Quality: CD Quality, Radio Quality, Telephone Quality;

Voice Recording Software: Philips/Dragon, MIDI Player, Sound Recorder, MONO & Stereo.

MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XI (Practical)

Duration: 3 Hours

Total Marks: 30

1. Hands on Experience

15

- A topic based website is to be developed by each student using various commands covered in HTML and VBScript.
- Web pages should be designed with following features.
- HTML Basic Tag(<HTML>/<HEAD>/<TITLE>/<BODY>//<I>/<U>/
/<HR>)
- Anchor/Image insertion/Linking
- Tables/Frame/Form
- CSS
- XML Markup / Declarations / Element Content Model
- Element Occurrence Indicators
- Buttons/Combo Box/Check Box/Text Box using VBScript

2. Practical File

5

The practical file should be made on the following domain specific area (with supported documents and printouts)

- Make a web page for Crime against Poor Community and view it on the browser
- Link few more pages to the developed page, containing information about Crime and steps taken by Government. (Use HTML tags to make a Static web page)
- Use inline styling to change appearance of contents of the web page.
- Use Style sheets (embedding or linking) to change the appearance of all the pages developed in the above case.
- Enhance the above web page by providing data in sheet format.
- At this step of web page development add dynamic features such as adding time and current date to the web page
- Collect user information using forms, for registration. Display the collected user details using message box, saying thank you for registration. (Use VB Script)

3. Project

5

Knowledge domain: HTML, DHTML, CSS, VB Script, and Image Editing Software

Suggested topics:

1. Website of a student containing personal information about student such as email address, photograph, likes, dislikes, hobbies, class, school name, achievements, favorite restaurant ,

favorite tourist places, ultimate aim of life, message to mankind, role model.

2. Website of a School providing information of a school containing Motto of school, photograph of school, brief description of school, name of the principal, facilities and infrastructure, labs, sports, faculty and departments information, results and achievements of students.
3. Website of a Restaurant providing information about types of food items, brief description about each item with pictures, price list, and availability timings.
4. Website of a Travel Agency to provide the information about various tourist places, various modes of journey available, types of hotels available.
5. Your blog in English/ other language

Note:

- For developing the website collect real information from various sources.
- It is advised to break up the above-mentioned case studies into smaller modules as per coverage of the course.
- Teachers can also provide alternative case studies of similar kind.

4. Viva Voce

05

Five questions from topics covered in the curriculum

MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XII (Theory)

Duration: 3 hours

Total Marks: 70

Unit No.	Unit Name	Periods			Marks		
		Th	Pr	Tot	Th	Pr	Tot
1.	INTRODUCTION TO COMPUTER SYSTEM	10	04	14	05	02	07
2.	NETWORKING AND OPEN STANDARDS	15	04	19	10	02	12
3.	WEBPAGE DEVELOPMENT	70	45	115	40	20	60
4.	MULTIMEDIA AND AUTHORIZING	15	17	32	15	6	21
		110	70	180	70	30	100

Unit 1: Introduction to Computer System

Database Terminology: Data, Record/Tuple, Table, Database

Concept of Keys: Candidate Key, Primary Key, Alternate Key, and Foreign Key;

Database Tool: Using any tool Create and Save a Table, Defining Primary Key, Inserting and Deleting Column, Renaming Column, Inserting records, Deleting Records, Modifying Records and Setting Table Relationships.

Unit 2: Networking and Open Standards

Computer Networking : Networking - a brief overview;

Network Topologies - Bus, Star, Tree;

Type of Network - LAN, MAN, WAN, PAN;

Wired Technologies - Co-Axial, Ethernet Cable, Optical Fiber;

Wireless Technologies - Blue Tooth, Infrared, Microwave, Radio Link, Satellite Link;

Network Devices - Hub, Switch, Repeater, Gateway - and their functions.

Wireless / Mobile Communication : GSM, CDMA, WLL, 3G, 4G

Internet Application : SMS, Voice Mail, Electronic Mail, Chat, Video Conferencing;

Network Security Concepts : Cyber Law, Firewall, Cookies, Hackers and Crackers;

Introduction to Open Source based Software

Open Source Concepts:

Open Source Software (OSS), common FOSS/FLOSS examples (e.g. Gnu/Linus, Firefox, Open Office, Linux, Mozilla Web Browser, Apache Server, MySQL, Postgres, Pango, Tomcat, PHP, Python)

Note : Teacher can introduce the students to the following websites:

www.sourceforge.net

www.openrdf.org

www.opensource.org

www.linux.com

www.linuxindia.net

www.gnu.org

Unit 3: Web Page Development

Review Of HTML/DHTML, VBScript covered in Class XI.

Installation and Managing WEB-Server: Internet Information Server (IIS) / Personal Web Server (PWS).

Active Server Pages (ASP): Concept of ASP, features of ASP, other equivalent tools - JSP, PHP;

Constants: String and Numeric;

Data types: use of Variant data type;

Variables: Explicit and Implicit Declaration;

Operators:

Arithmetic: +, - (Unary and Binary), *, /, \ (integer division) mod, ^;

Comparison: <, >, <=, >=, <>, =;

Logical: AND, OR, NOT;

String Operator: & or + (for Concatenation);

Functions:

Conversion functions: Abs(), CBool(), CByte(), CInt(), CStr(), CSng(), CLng(), CDate();

String Manipulation Functions: UCase(), LCase(), Len(), Left(), Right(), Mid(), LTrim(), InStr(), RTrim(), LTrim();

Time & Date Functions: Date(), Day(), Hour(), Left(), Len(), Minute(), Month(), Monthname(), Now();

Arrays: Declaration and use of 1 dimensional arrays;

Control Structures: IF..THEN, IF..THEN..ELSE..END IF, IF..THEN.. ELSEIF..THEN.. END IF, SELECT..CASE..END SELECT, FOR..NEXT, FOR EACH.. NEXT, DO WHILE..LOOP, DO..LOOP WHILE, DO UNTIL . LOOP;

Procedures and Functions: Passing parameters/arguments;

Concept of object model structure (client to server and server to client);

ASP Objects:

Response, Request, Application, Session, Server, ASP Error;

Properties, Methods, Events, Setting Object properties, Retrieving Object properties, calling objects/ methods;

Response Object: Write, AddHeader, AppendToLog, BinaryWrite, Using Shortcuts <% =value/ expr%>, Controlling information: using Buffer, Flush Clear, End;

Request Object: Request Object Collection: QueryString, Form, ServerVariables, Cookies, ClientCertificate; HTTP_User_Agent, REMOTE_ADDER, REMOTE_HOST, SERVER_NAME;

Server Object : Execute, Transfer, Create Object;

Application Object: Contents, Lock, Unlock, RemovAll;

Session Object: Contents, Remove, Remove All, Abandon;

ASP Components: AD Rotator, Content Rotator, Counters, Page Counter, Permission Checker;

Text Files: Open and Read content from a text file;

Working on Database: Connecting with Database: Cration of DSN, using OLE DB, Inserting, Retrieving, Modifying/Updation of records from Tables in Database using server objects (ADODB, Connection, ADODB, Recordset);

Unit 4: Multimedia and Authoring Tools

Movie File Formats: AVI, MPEG, SWF, MOV, DAT; Embedding Audio/Video on the web page;

Multimedia Authoring Using Macromedia Flash

Making of Simple Flash Movie, Setting Properties, Frame Rate, Dimensions, and Background Color;

Movie Frames: Concept of Frame, Frame Buffer, and Frame Rate, Creating a Key Frame;

Scene: Concept of Scene, Duplicate Scene, Add Scene, Delete Scene, and Navigating between Scenes;

Layers: Concept of Layer, Layer Properties, Layer Name, Show/Hide/Lock layers,

Type of Layer - Normal/Guide/Mask, Outline Color, Viewing Layer as outline, Layer Height, Adding/deleting a layer; Inserting Text Into the Frame, Inserting Graphical Elements into the frame, Converting Text/Graphics to Symbol, Inserting Symbol into the Frame, Setting Symbol Property (Graphics/Button/Movie), Inserting Blank Frame, Inserting Blank Key Frame, Inserting Key Frame into the Blank frame, Selecting all/Specific frames of a Layer, Copying/Pasting selected Frames,

Special Effects: Motion Tweening, Shape Tweening, Changing Colour using Tint Effect, Inserting Sound Layer; Testing a Scene and Movie;

Importing/Exporting Movie, Sound and other multimedia objects

Exporting and Publishing a Flash Movie: Publishing A Flash Movie; Changing publish Settings; Producing SWF(Flash Movie), HTML page, GIF image, JPEG Image (*.jpg), PNG Image, Windows Projector (*.exe), Macintosh Projector (*.hqx), Quick Time (*.mov), Real Player (*.smil); Testing with Publish Preview

Multimedia Application : Education (use of CAI tool), Entertainment, Edutainment, Virtual Reality, Digital Labraries, Information Kiosks, Video on Demand, Webpages Video Phone, Video conferencing and Health care.

MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XII (Practical)

Duration: 3 Hours

Total Marks: 30

1. Hands on Experience

15

A website based on a particular topic has to be developed by each student using various commands covered in HTML, VBScript and ASP with at least 4 web pages.

Web page should be designed with following features.

- HTML Basic Tags (html/head/title/body/B/I/U/BR/HR)
- Functions
- Conditional and Control Statements
- Objects: Response/Request / Application/Session /Server /ASP error
- Image Editing using Photo Shop /Corel draw
- Merging layers /Moving and Copying Layers
- Use of Multimedia Authoring (Using Macromedia Flash)
- (Note: Output as Web page/Flash Movie/Windows Projector/Quick Time)

2. Practical File

05

The practical file should be made on the following domain specific area (with supported documents and printout)/hard copies:

- Make a Simple web page containing almost all the tags of HTML and View that web page on the Browser.
- Develop a Home page for Income Tax department (Simple and Textual) and store it in the directory used for Web Services on the Web-Server.
- Enhance the home page by providing links to other sample pages (e.g. Income Tax Zone)
- Income Tax Detail Form for an individual, Income Tax Notification, Income Tax News etc.)
- Embed Time and Date on the home page.
- Further enhance the website by providing User Registration Page. Collect the user details and Display a new web page showing Thanks For Registration. Also write appropriate functions to validate form inputs.
- Give a login facility to the user with Anonymous name and maintain the session till the user logs out.
- For user log in attempts, maintain a visitor count.
- Change the login module of the web page and now connect it to the IncomeTax User database on the server. This is to be done to store the registration detail and facilitate login to the user.

- The login page is to be made in a way that it should also provide facility to change password, if user forget password.
- Store some of the created or edited sound files on the Web-Server and provide links to play it.
- Change the appearance of the web page using pictures at appropriate places (e.g. Logo of Income Tax Department, Photograph of Income Tax Building etc.)
- Visit websites (State Govt./ Local language newspaper) and get 5 different printouts in local language.

(Note: Student can also improve the case studies from class XI and enhance it further with database and multimedia support)

3. Project based on case study

05

Case Studies are to be divided into following parts:

Case study Part 1(Collection, Editing and Creation of Website Resources):

Create an electronic movie with various pictures, audio clipping, movie clippings, and factual text related to school / organisation;

- Introduction to 3D Animation (Using 3D Studio)
- Embedding video and audio in web pages.
- An introduction to interactive walk-through.
- Embedding walk-through into web pages.

Case Study Part 2(Development of Web Content with resources):

Case studies covered in class XI with database support with Login, Online Registration, Booking and/ or ordering facility.

Sample Case Study

(Note: Other similar type of case studies can also be used for the project work)

Mr. Verma is the CEO of copsi soft drinks (I) Ltd. His company is having a wide network of distributors for copsi branded soft drinks. With the increase in sales and distribution network, it is required to adopt a new technological intervention in the existing system. He wants that the company should have a global presence over the widely popular medium, called World Wide Web. Assume that you are appointed as the senior person of the development team. You are required to collect the company information and its current requirement. For your benefit we had collected the details of the company which are as follows:

The company Information:

Name of the Company: copsi soft drinks (I) Ltd.

Zone: East, West, North and South

Distributors: All over the world.

Mr. Verma said that the web site should be able to reflect company in terms of :

- Home Page
- Product & Promotion Page
- Distributor Login Page / Password Recovery Page
- Distributor Specific Details Page
- Registration Page for Distributor-ship
- Company News and Flashes
- Company Profile

Technical Details:

Web site Introduction is to be made in flash.

A proper database is to be maintained for the distributor information.

Note:

For developing the above sites/movies collect the actual information from various sources.

It is advised to break up the above-mentioned case studies into smaller modules as per coverage of the course.

Teachers can also provide alternative case studies of similar kind.

4. Viva Voce

05

Five questions from topics covered in the curriculum

Reference Books

- _ HTML Complete - Sybex (BPB)
- _ Mastering HTML 4 Premium Edition - Ray (BPB)
- _ HTML Example Book - Farrar (BPB)
- _ Mastering WEB DESIGNING - Maccoy (BPB)
- _ Inside Adobe Photoshop 6 - Bouton (BPB)
- _ Multimedia on the PC - Sinclair (BPB)
- _ Multimedia Magic - Gokul, S (BPB)
- _ Mastering CorelDraw 9 - Altman (BPB)
- _ Learn Advanced HTML with DHTML - Ramalho (BPB)
- _ Effective Web Design - Navarro (BPB)
- _ ASP, ADO and XML Complete - Sybex (BPB)
- _ Mastering Active Server Pages 3 - Russell (BPB)

- _ Practical ASP - Bayross (BPB)
- _ Inside Flash 5 - Kea thing (BPB)
- _ VBSCRIPT Interactive Course: Waite Group - Simon (BPB)
- _ Computer Network - A.S. Tanenbaum, (4th Edition) (PHI)
- _ Network Concept and Architechtures - Hancock (BPB)

Educational Qualification for the post of PGT

For teaching Computer Science(083), Informatics Practices (065) and Multi Media and Web Technology (067)

1. B.E. or B. Tech (Computer Science/IT) from a recognized University or an equivalent Degree or Diploma from an institution/university recognized by the Govt. on India.
2. B.E. or B. Tech (any Stream) and Post Graduate Diploma in Computers from any recognized university.
3. M.Sc. (Computer Science) MCA or Equivalent from a recognized University.
4. B.Sc. (Computer Science) BCA or Equivalent and Post Graduate degree in any subject from a recognized University.
5. Post Graduate Diploma in Computer and Post Graduate degree in any subject from a recognized University.
6. 'A' Level from DOEACC and Post Graduate degree in any subject.
7. 'B' or 'C' Level from 'DOEACC', Ministry of Information and Communication Technology.

17. ECONOMICS (Code No. 30)

Rationale

Economics is one of the social sciences, which has great influence on every human being. As economic life and the economy go through changes, the need to ground education in children's own experience becomes essential. While doing so, it is imperative to provide them opportunities to acquire analytical skills to observe and understand the economic realities.

At senior secondary stage, the learners are in a position to understand abstract ideas, exercise the power of thinking and to develop their own perception. It is at this stage, the learners are exposed to the rigour of the discipline of economics in a systematic way.

The economics courses are introduced in such a way that in the initial stage, the learners are introduced to the economic realities that the nation is facing today along with some basic statistical tools to understand these broader economic realities. In the later stage, the learners are introduced to economics as a theory of abstraction.

The economics courses also contain many projects and activities. These will provide opportunities for the learners to explore various economic issues both from their day-to-day life and also from issues, which are broader and invisible in nature. The academic skills that they learn in these courses would help to develop the projects and activities. The syllabus is also expected to provide opportunities to use information and communication technologies to facilitate their learning process.

OBJECTIVES

1. Understanding of some basic economic concepts and development of economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.
2. Realisation of learners' role in nation building and sensitivity to the economic issues that the nation is facing today.
3. Equipment with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond senior secondary stage.
4. Development of understanding that there can be more than one views on any economic issue and necessary skills to argue logically with reasoning.

Class XI

Paper 1 **3 Hours** **100 Marks**

Units	Periods	Marks
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Part A : Statistics for Economics

1. Introduction	5	3
2. Collection, Organisation and Presentation of Data	25	12
3. Statistical Tools and Interpretation	64	30
4. Developing Projects in Economics	10	5
	<hr/>	<hr/>
	104	50

Part B: Indian Economic Development

5. Development Policies and Experience (1947-90)	18	10
6. Economic Reforms since 1991	14	8
7. Current Challenges facing Indian Economy	60	25
8. Development experience of India-A comparison with neighbours	12	7
	<hr/>	<hr/>
	104	50

Part A : Statistics for Economics

In this course, the learners are expected to acquire skills in collection, organisation and presentation of quantitative and qualitative information pertaining to various simple economic aspects systematically. It also intends to provide some basic statistical tools to analyse, and interpret any economic information and draw appropriate inferences. In this process, the learners are also expected to understand the behaviour of various economic data.

Unit 1: Introduction

5 Periods

What is Economics?

Meaning, scope and importance of statistics in Economics

Unit 2: Collection, Organisation and Presentation of data 25 Periods

Collection of data - sources of data - primary and secondary; how basic data is collected; methods of collecting data; Some important sources of secondary data: Census of India and National Sample Survey Organisation.

Organisation of Data: Meaning and types of variables; Frequency Distribution.

Presentation of Data: Tabular Presentation and Diagrammatic Presentation of Data: (i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and ogive) and (iii) Arithmetic line graphs (time series graph).

Unit 3: Statistical Tools and Interpretation

64 Periods

(For all the numerical problems and solutions, the appropriate economic interpretation may be attempted. This means, the students need to solve the problems and provide interpretation for the results derived)

Measures of Central Tendency- mean (simple and weighted), median and mode

Measures of Dispersion - absolute dispersion (range, quartile deviation, mean deviation and standard deviation); relative dispersion (co-efficient of quartile-deviation, co-efficient of mean deviation, co-efficient of variation); Lorenz Curve: Meaning and its application.

Correlation - meaning, scatter diagram; Measures of correlation - Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.

Introduction to Index Numbers - meaning, types - wholesale price index, consumer price index and index of industrial production, uses of index numbers; Inflation and index numbers.

Some Mathematical tools used in Economics : Equation of a line, slope of a line, slope of a curve.

Unit 4: Developing Projects in Economics

10 Periods

The students may be encouraged to develop projects, which have primary data, secondary data or both. Case studies of a few organisations / outlets may also be encouraged. Some of the examples of the projects are as follows (they are not mandatory but suggestive):

- (i) A report on demographic structure of your neighborhood;
- (ii) Consumer awareness amongst households
- (iii) Changing prices of a few vegetables in your market
- (iv) Study of a cooperative institution: milk cooperatives

The idea behind introducing this unit is to enable the students to develop the ways and means by which a project can be developed using the skills learned in the course. This includes all the steps involved in designing a project starting from choosing a title, exploring the information relating to the title, collection of primary and secondary data, analysing the data, presentation of the project and using various statistical tools and their interpretation and conclusion.

Part B: Indian Economic Development

Unit 5: Development Policies and Experience (1947-90): 18 Periods

A brief introduction of the state of Indian economy on the eve of independence.

Common goals of Five Year Plans.

Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy, etc.), industry (industrial licensing, etc.) and foreign trade.

Unit 6: Economic Reforms since 1991:

14 Periods

Need and main features - liberalisation, globalisation and privatisation;

An appraisal of LPG policies

Unit 7: Current challenges facing Indian Economy: 60 Periods

Poverty- absolute and relative; Main programmes for poverty alleviation: A critical assessment; Rural development: Key issues - credit and marketing - role of cooperatives; agricultural diversification; alternative farming - organic farming

Human Capital Formation: How people become resource; Role of human capital in economic development; Growth of Education Sector in India

Employment: Formal and informal, growth and other issues: Problems and policies.

Inflation : Problems and Policies

Infrastructure: Meaning-and Types: Case Studies: Energy and Health: Problems and Policies- A critical assessment;

Sustainable Economic Development: Meaning, Effects of Economic Development on Resources and Environment, including global warming.

Unit 8: Development Experience of India: 12 Periods

A comparison with neighbours

India and Pakistan

India and China

Issues: growth, population, sectoral development and other developmental indicators.

Class XII

Paper 1	3 Hours	100 Marks	
Units		Periods	Marks
Part A : Introductory Microeconomics			
1	Introduction	10	4
2.	Consumer Equilibrium and Demand	32	18
3.	Producer Behaviour and Supply	32	18
4.	Forms of Market and Price Determination	22	10
5.	Simple applications of Tools of demand and supply	8	-
		104	50
Part B : Introductory Macroeconomics			
6.	National Income and Related Aggregates	30	15
7.	Money and Banking	18	8
8.	Determination of Income and Employment	25	12
9.	Government Budget and the Economy	17	8
10.	Balance of Payments	14	7
		104	50

Part A : Introductory Microeconomics

Unit 1: Introduction

10 Periods

Meaning of microeconomics and macroeconomics

What is an economy? Central problems of an economy : what, how and for whom to produce; concepts of production possibility frontier and opportunity cost.

Unit 2: Consumer Equilibrium and Demand

32 Periods

Consumer's equilibrium – meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Demand, market demand, determinants of demand, demand schedule, demand curve, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand – (a) percentage-change method and (b) geometric method (linear demand curve); relationship between price elasticity of demand and total expenditure.

Unit 3: Producer Behaviour and Supply

32 Periods

Production function: Total Product, Average Product and Marginal Product.

Returns to a Factor.

Cost and Revenue: Short run costs - total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationship.

Revenue - total, average and marginal revenue.

Producer's equilibrium-meaning and its conditions in terms of marginal revenue-marginal cost.

Supply, market supply, determinants of supply, supply schedule, supply curve, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply – (a) percentage-change method and (b) geometric method.

Unit 4: Forms of Market and Price Determination

22 Periods

Perfect competition - Features; Determination of market equilibrium and effects of shifts in demand and supply.

Other Market Forms - monopoly, monopolistic competition, oligopoly - their meaning and features.

Unit 5: Simple applications of Tools of demand and supply

8 Periods

(not to be examined)

Part B : Introductory Macroeconomics

Unit 6: National Income and related aggregates **30 Periods**

Some basic concepts: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation.

Circular flow of income; 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 and Net Domestic Product (GDP and NDP) - at market price, at factor cost; National Disposable Income (gross and net), Private Income, Personal Income and Personal Disposable Income; Real and Nominal GDP. GDP and Welfare

Unit 7: Money and Banking **18 Periods**

Money – its meaning and functions.

Supply of money – Currency held by the public and net demand deposits held by commercial banks.

Money creation by the commercial banking system.

Central bank and its functions (example of the Reserve Bank of India).

Unit 8: Determination of Income and Employment **25 Periods**

Aggregate demand and its components.

Propensity to consume and propensity to save (average and marginal).

Short-run equilibrium output; investment multiplier and its mechanism.

Meaning of full employment and involuntary unemployment.

Problems of excess demand and deficient demand; measures to correct them - change in government spending, availability of credit.

Unit 9: Government Budget and the Economy **17 Periods**

Government budget - meaning, objectives and components.

Classification of receipts - revenue receipts and capital receipts; classification of expenditure - revenue expenditure and capital expenditure.

Measures of government deficit - revenue deficit, fiscal deficit, primary deficit: their meaning.

Fiscal Policy and its role (non evaluative topic)

Unit 10: Balance of Payments **14 Periods**

Balance of payments account - meaning and components; balance of payments deficit-meaning.

Foreign exchange rate – meaning of fixed and flexible rates and managed floating.

Determination of exchange rate in a free market.

Recommended textbooks

1. Indian Economic Development, Class XI, NCERT
2. Introductory Micro Economics, Class XII, NCERT
3. Macro Economics, Class XII, NCERT
4. Supplementary Reading Material in Economics, Class XII, CBSE

Note : The above publications are also available in Hindi Medium

18. BUSINESS STUDIES (Code No. 054)

Rationale

The courses in Business Studies and Accountancy are introduced at + 2 stage of Senior Secondary Education as formal commerce education is provided after first ten years of schooling. Therefore, it becomes necessary that instructions in these subjects are given in such a manner that students have a good understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society.

Business is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. To understand the framework in which a business operates, a detailed study of the organisation and management of business processes and its interaction with the environment is required. Globalisation has changed the way organizations transact their business.

Information Technology is becoming a part of business operations in more and more organisations. Computerised systems are fast replacing other systems. E-business and other related concepts are picking up fast which need to be emphasized in the curriculum.

The course in Business Studies will prepare students to analyse, manage, evaluate and respond to changes which affect business. It provides a way of looking at and interacting with the business environment. It recognizes the fact that business influences and is influenced by social, political, legal and economic forces. It allows students to appreciate that business is an integral component of society and develops an understanding of many social and ethical issues.

Therefore, to acquire basic knowledge of the business world, a course in Business Studies would be useful. It also informs students of a range of study and work options and bridges the gap between school and work.

Objectives

- To develop students with an understanding of the processes of business and its environment;
- To acquaint students with the dynamic nature and inter-dependent aspects of business;
- To develop an interest in the theory and practice of business, trade and industry;
- To familiarize students with theoretical foundations of the process of organizing and managing the operations of a business firm;
- To help students appreciate the economic and social significance of business activity and the social cost and benefits arising there from;
- To acquaint students with the practice of managing the operations and resources of business;
- To enable students to act more effectively and responsibly as consumers, employers, employees and citizens;
- To develop in students a business attitude and skills.
- To inculcate appropriate attitude and develop skills among students to pursue higher education, world of work including self employment.

Business Studies Syllabus

CLASS XI

One Paper

3 Hours

100 Marks

Units	Periods	Marks
Part A: Foundations of Business		
1. Nature and Purpose of Business	20	08
2. Forms of Business Organisations	24	12
3. Public, Private and Global Enterprises	20	08
4. Business Services	18	10
5. Emerging Modes of Business	10	06
6. Social Responsibility of Business and Business Ethics	12	06
	<u>104</u>	<u>50</u>
Part B: Finance and Trade		
7. Sources of business finance	28	14
8. Small Business	14	06
9. Internal Trade	28	12
10. International Business	12	08
11. Project Work	<u>22</u>	<u>10</u>
	<u>104</u>	<u>50</u>

A Part: Foundations of Business

(Periods 104)

Unit 1: Nature and purpose of business:

20 Periods

- Concept and characteristics of business.
- Business, profession and employment - distinctive features.
- Objectives of business - economic and social, role of profit in business
- Classification of business activities: Industry and Commerce.
- Industry - types: primary, secondary, tertiary.
- Commerce - trade: types (internal, external, wholesale and retail; and auxiliaries to trade: banking, insurance, transportation, warehousing, communication, and advertising.
- Business risks - nature and causes.

Unit 2: Forms of Business Organisations

(Periods 24)

- Sole Proprietorship- meaning, features, merits and limitations.
- Partnership- Features, types, merits and limitations of partnership and partners, registration of a partnership firm, partnership deed. Type of partners.
- Hindu Undivided Family Business: features.
- Cooperative Societies- features, types, merits and limitations.
- Company: private and public company -features, merits and limitations.
- Formation of a company- stages.
- Starting a business - basic factors.

Unit 3: Public, Private & Global Enterprises

(Periods 20)

- Private sector and public sector enterprises.
- Forms of public sector enterprises: features, merits and limitations of departmental undertakings, statutory corporation and Government Company.
- Changing role of public sector enterprises.
- Global enterprises, Joint ventures, Public Private Partnership - features

Unit 4: Business Services

(Periods 18)

- Banking: types of bank accounts- savings, current, recurring, fixed deposit and multiple option deposit account.
- Banking services with particular reference to issue of bank draft, banker's cheque (Pay order), RTGS (Real Time Gross Settlement) NEFT (National Electronic Funds Transfer), bank overdraft, cash credits and e- banking.
- Insurance: principles, concept of life, health, fire and marine insurance.
- Postal and telecom services: mail (UPC, registered post, parcel, speed post and courier) and other services.

Unit 5: Emerging Modes of Business

(Periods 10)

- E-Business - scope and benefits, resources required for successful e-business implementation, online transactions, payment mechanism, security and safety of business transactions.
- Outsourcing-concept, need and scope of BPO (business process outsourcing) and KPO (knowledge process outsourcing).

Unit 6: Social Responsibility of Business and Business Ethics (Periods 12)

- Concept of social responsibility.
- Case for social responsibility.
- Responsibility towards owners, investors, consumers, employees, government and community.
- Environment protection and business.
- Business ethics and elements.

Part B: Finance and Trade (Periods 104)

Unit 7: Sources of business finance (Periods 28)

- Concept of business finance.
- Owner's funds - equity shares, preference shares, GDR, ADR & IDR and retained earnings.
- Borrowed funds- debentures and bonds, loan from financial institutions, loans from commercial banks, public deposits, trade credit, ICD (inter corporate deposits).

Unit 8: Small Business (Periods 14)

- Small scale enterprise as defined by MSMED Act 2006 (Micro ,Small and Medium Enterprise Development Act)
- Role of small business in India with special reference to Rural Areas
- Government schemes and agencies for small scale industries: NSIC (National Small industries Corporation) and DIC (District Industrial Center) with special reference to rural, backward & hilly areas.

Unit 9: International Trade (Periods 28)

- Services rendered by a wholesaler and a retailer
- Types of retail trade- itinerant and small scale fixed shops
- Large scale retailers- departmental stores, chain stores, mail order business.
- Concept of automatic vending machine.
- Chambers of Commerce and Industry: basic functions
- Main documents used in internal trade: Performa invoice, invoice, debit note, credit note, LR(Lorry Receipt) and RR(Railway Receipt)
- Terms of Trade : COD (Cash on Delivery), FOB(Free on Board) ,CIF (Cost, Insurance and Freight), E&OE (Errors and Omissions Excepted)

Unit 10: International

(Periods 12)

- Concept and problems of international trade.
- Export import procedure and documents.
- Role of WTO

CLASS XII**One Paper****3 Hours****100 Marks****Unitwise Weightage**

Units	Periods	Marks
Part A : Principles and Functions of Management		
1. Introduction to Management	12	5
2. Principles of Management	12	6
3. Business Environment	10	5
4. Planning	12	6
5. Organizing	16	8
6. Staffing	14	6
7. Directing	16	8
8. Controlling	14	6
	104	50
Part B: Business Finance and Marketing		
9. Financial Management	22	12
10. Financial Markets	20	8
11. Marketing Management	30	14
12. Consumer Protection	16	6
Part C : Project	16	10
	104	50

Part A: Principles and Functions of Management**Unit I: Nature and significance of Management****(Periods 12)**

- Management - concept, objectives and importance
- Management as Science, Art and Profession.
- Levels of management
- Management functions - planning, organising, staffing, directing and controlling.
- Coordination - concept, characteristics and importance.

Unit 2: Principles of Management**(Periods 12)**

- Principles of Management - concept, nature and significance
- Fayol's principles of management
- Taylor's Scientific Management - principles and techniques

Unit 3: Management and Business Environment (Periods 10)

- Business Environment - concept and importance
- Dimensions of Business Environment - Economic, Social, Technological, Political and Legal
- Impact of Government policy changes on business with special reference to liberalization, privatization and globalisation in India.

Unit 4: Planning (Periods 12)

- Concept, importance and limitations
- Planning process
- Single use and Standing Plans - Objectives, Strategy, Policy, Procedure, Method, Rule, Budget and Programme.

Unit 5: Organising (Periods 16)

- Concept and importance.
- Organizing Process.
- Structure of organization - functional and divisional.
- Formal and informal organization.
- Delegation: concept, elements and importance.
- Decentralization: concept and importance.

Unit 6: Staffing (Periods 14)

- Concept and importance of staffing
- Staffing as a part of Human Resource Management
- Staffing process :
 - Recruitment - sources
 - Selection - process
- Training and Development - Concept and importance. Methods of training- on the job and off the job- Induction training, vestibule training, apprenticeship training and internship training.

Unit 7: Directing

(Periods 16)

- Concept and importance
- Elements of Directing
 - Supervision - concept, functions of a supervisor.
 - 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 8: Controlling

(Periods 14)

- Concept, nature and importance
- Relationship between planning and controlling
- Steps in the process of control

Part B : Business Finance and Marketing

Unit 9: Financial Management

(Periods 22)

- Concept and objectives of financial management.
- Financial decisions : investment, financing and dividend and factors affecting.
- Financial planning - concept and importance.
- Capital Structure - concept and factors affecting.
- Fixed and Working Capital - concept and factors affecting their requirements.

Unit 10: Financial Markets

(Periods 20)

- Financial Markets: concept and types.
- Money market and its instruments.
- Capital market and its types (primary and secondary).
- Stock Exchange - functions and trading procedure. Depository Services and Demat Account.
- Securities and Exchange Board of India (SEBI) - objectives and functions.

Unit 11: Marketing Management

(Periods 30)

- Marketing - concept and functions.
- Marketing management philosophies.
- Marketing Mix - concept
 - Product - concept, branding, labeling and packaging.

- Price - factors determining price.
- Physical distribution- concept, channels of distribution: types, choice of channels.
- Promotion -concept and elements; advertising- concept, role, objections against advertising, personal selling - concept and qualities of a good salesman, sales promotion - concept and techniques, public relations - concept and role.

Unit 12: Consumer Protection

(Periods 16)

- Concept and importance of consumer protection.
- Consumer Protection Act 1986
 - Meaning of consumer and consumer protection.
 - Rights and responsibilities of consumers
 - Who can file a complaint and against whom?
 - Redressal machinery.
 - Remedies available.
- Consumer awareness - Role of consumer organizations and NGO's

Unit 13: Project Work

(Periods 16)

19. ACCOUNTANCY (Code No. 055)

Rationale

The course in Accountancy is introduced at + 2 stage of Senior Secondary education, as formal commerce education is provided after first ten years of schooling. With the fast changing economic scenario and business environment in a state of continuous flux, elementary business education along with accountancy as the language of business and as a source of financial information has carved out a place for itself at the Senior Secondary stage. Its syllabus content should give students a firm foundation in basic accounting principles and methodology and also acquaint them with the changes taking place in the presentation and analysis of accounting information, keeping in view the development of accounting standards and use of computers.

Against this background, the course puts emphasis on developing basic understanding about the nature and purpose of the accounting information and its use in the conduct of business operations. This would help to develop among students logical reasoning, careful analysis and considered judgement. Accounting as an information system aids in providing financial information. The emphasis at Class XI is placed on basic concepts and process of accounting leading to the preparation of accounts for a sole proprietorship firm. Computerised accounting is becoming more and more popular with increasing awareness about use of computers in business. Keeping this in view, the students are exposed compulsorily to the basic knowledge about computers and its use in accounting in the same year.

In class XII, Accounting for Partnership Firms and Companies are to be taught as a compulsory part. Students will also be given an opportunity to understand further about Computerized Accounting System, as an optional course to Analysis of Financial Statements.

Objectives :

- To familiarize the students with accounting as an information system;
- To acquaint the students with basic concepts of accounting and accounting standards;
- To develop the skills of using accounting equation in processing business transactions;
- To develop an understanding about recording of business transactions and preparation of financial statements;
- To enable the students with accounting for reconstitution and dissolution of partnership firms;
- To enable the students to understand and analyse the financial statements; and
- To familiarize students with the fundamentals of computerized system of accounting.

CLASS XI

One Paper 3 Hours 100 Marks

Units	Periods	Marks
Part A : Financial Accounting-I		
1. Introduction to Accounting	10	5
2. Theory Base of Accounting	14	7
3. Recording of Transactions	18	9
4. Preparation of Ledger, Trial Balance and Bank Reconciliation Statement.	18	9
5. Depreciation, Provision and Reserves	16	8
6. Accounting for Bills of Exchange	16	8
7. Rectification of Errors	14	7
8. Financial statements of sole proprietorship	24	12
	130	65
Part B: Financial Accounting-II		
9. Financial statements of not-for-profit organizations	22	10
10. Accounts from incomplete records	14	5
11. Computers in Accounting	22	10
12. Project Work	22	10
	80	35

CLASS XI

Part A: Financial Accounting - I **(Periods 120)**

Unit 1: Introduction to Accounting **(Periods 10)**

- Accounting- objectives, advantages and limitations, types of accounting information; users of accounting information and their needs.
Basic accounting terms: business transaction, account, capital, drawings, liability (internal & external, long term & short term) asset (tangible & intangible, fixed, current, liquid and fictitious) receipts (capital & revenue), expenditure (capital, revenue & deferred), expense, income, profits, gains and losses, purchases, sales, stock, debtors, bills receivable, creditors, bills payable, goods, cost, vouchers, discount - trade and cash.

Unit 2: Theory Base of Accounting **(Periods 14)**

- Fundamental accounting assumptions: going concern, consistency, and accrual.
- Accounting principles: accounting entity, money measurement, accounting period, full disclosure, materiality, prudence, cost concept, matching concept and dual aspect.
- Double entry system.
- Basis of accounting - cash basis and accrual basis.
- Accounting standards: concept & objective. IFRS (International Financial Reporting Standards).

Unit 3: Recording of Transactions (Periods 18)

- Accounting equation: analysis of transactions using accounting equation.
- Rules of debit and credit: for assets, liabilities, capital, revenue and expenses.
- Origin of transactions- source documents (invoice, cash memo, pay in slip, cheque), preparation of vouchers - cash (debit & credit) and non cash (transfer).
- Books of original entry: format and recording - Journal.
- Cash book: simple, cash book with bank column, petty cash book,
- Other books: purchases book, sales book, purchases returns book, sales returns book, bills receivable book, bills payable book and journal proper.

Unit 4: Preparation of Ledger, Trial Balance and Bank Reconciliation Statement (Periods 18)

- Ledger - format, posting from journal, cash book and other special purpose books, balancing of accounts.
- Trial balance: objectives and preparation
- Bank reconciliation statement: need and preparation. Corrected cash book balance.

Unit 5: Depreciation, Provisions and Reserves (Periods 16)

- Depreciation: concept, need and factors affecting depreciation; methods of computation of depreciation: straight line method, written down value method (excluding change in method)
- Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/ accumulated depreciation account, treatment of disposal of asset.
- Provisions and reserves: concept, objectives and difference between provisions and reserves; types of reserves- revenue reserve, capital reserve, general reserve, specific reserves and secret reserves.

Unit 6: Accounting for Bills of Exchange (Periods 16)

- Bills of exchange and promissory note: definition, features, parties, specimen and distinction.
- Important terms : term of bill ,due date, days of grace, date of maturity, bill at sight, bill after date, discounting of bill, endorsement of bill, bill sent for collection, dishonor of bill, noting of bill , retirement and renewal of a bill, insolvency of acceptor.
- Accounting treatment of bill transactions

Unit 7: Rectification of Errors (Periods 14)

- Errors: types-errors of omission, commission, principles, and compensating; Their effect on Trial Balance.
- Detection and rectification of errors; preparation of suspense account.

Unit 8: Financial Statements of Sole proprietorship (Periods 24)

- Financial Statements: objective and importance.
- Trading and profit and loss account: gross profit, operating profit and net profit.
- Balance Sheet: need, grouping, marshalling of assets and liabilities.
- Adjustments in preparation of financial statements : with respect to closing stock, outstanding expenses, prepaid expenses, accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, manager's commission, abnormal loss, goods taken for personal use and goods distributed as free sample .
- Preparation of Trading and Profit and Loss Account and Balance Sheet of sole proprietorship.

Part B: Financial Accounting-II

Unit 9: Financial Statements of not-for-Profit Organizations (Periods22)

- Not-for-profit organizations: concept.
- Receipts and payment account: features.
- Income and expenditure account: features. preparation of income and expenditure account and balance sheet from the given receipt and payment account with additional information.

Unit 10: Accounts from Incomplete Records (Periods 14)

- Incomplete records: use and limitations.
- Ascertainment of profit/loss by statement of affairs method.

Unit 11: Computers in Accounting (Periods 22)

- Introduction to Computer and Accounting Information system { AIS }
- Application of computers in Accounting: automation of accounting process, designing accounting reports, MIS reporting, data exchange with other information systems.
- Comparison of accounting process in manual and computerized accounting highlighting advantages and limitations of automation.sourcing of accounting system: Readymade, customized and tailormade accounting system. Advantages and disadvantages of each option.

- > Accounting and database system
 - o Accounting and database Management system.
 - o Concept of entity and relationship: entities and relationships in an Accounting system: designing and creating simple tables, forms, and reports in the context of accounting system.

Unit 12: Project Work (Any One)

(Periods 22)

1. Collection of Source Documents, Preparation of Vouchers, Recording of Transactions with the help of vouchers.
2. Preparation of Bank Reconciliation Statement with the help of given Cash book and Pass book.
3. Project Work on any Windows based Accounting package: Installing & starting the package, setting up a new Company, Setting up account heads, voucher entry, viewing and editing data.

CLASS XII**One Paper****3 Hours****80 Marks**

Unit		Periods	Marks
Part A : Accounting for Partnership Firms and Companies			
1.	Accounting for Partnership Firms - Fundamentals	20	10
2.	Accounting for Partnership Firms - Reconstitution and Dissolution	52	25
3.	Accounting for Share Capital	38	18
4.	Accounting for Debentures	14	7
		124	60
Part B: Financial Statement Analysis			
5.	Analysis of Financial Statements	24	12
6.	Cash Flow Statement	20	8
7.	Project Work	42	20
	Unit 1 : Project File	4 marks	
	Unit 2 : Written Test	12 marks (one hour)	
	Unit 3 : Viva Voce'	4 marks	
	OR	86	40
Part C: Computerized Accounting			
5.	Overview of Computerized Accounting System	12	4
6.	Accounting Applications of Electronic Spread sheet	24	6
7.	Using Computerized Accounting System	12	4
8.	Data Base Management System	12	6
9.	Practical Work	26	20
	Unit 1 : File	4 marks	
	Unit 2 : Practical Examination	12 marks (one hours)	
	Unit 3 : Viva Voce'	4 marks	
		86	40

CLASS XII

PART A: Accounting for Partnership Firms and Companies

Unit 1. Accounting for Partnership firms - Fundamentals

- Partnership : features, Partnership deed.
- Provisions of the Indian Partnership Act 1932 in the absence of partnership deed.
- Fixed v/s fluctuating capital accounts, division of profit among partners, guarantee of profits, past adjustments (relating to interest on capital, interest on drawing, salary and profit sharing ratio), preparation of P&L Appropriation account.
- Goodwill: nature, factors affecting and methods of valuation - average profit, super profit, and capitalization

Unit 2. Accounting for Partnership firms - Reconstitution and Dissolution

- Change in the Profit Sharing Ratio among the existing partners - sacrificing ratio, gaining ratio. Accounting for revaluation of assets and re-assessment of liabilities and distribution of reserves and accumulated profits.
- Admission of a partner - effect of admission of a partner on change in the profit sharing ratio, treatment of goodwill (as per AS 26), treatment for revaluation of assets and re-assessment of liabilities, treatment of reserves and accumulated profits, adjustment of capital accounts and preparation of balance sheet
- Retirement and death of a partner: effect of retirement /death of a partner on change in profit sharing ratio, treatment of goodwill, treatment for revaluation of assets and re-assessment of liabilities, adjustment of accumulated profits and reserves. calculation of deceased partner's share of profit till the date of death. Preparation of deceased partner's capital account, executor's account and preparation of balance sheet
- Dissolution of partnership firms: types of dissolution of firm. Settlement of accounts - preparation of realization account, and other related accounts (excluding piecemeal distribution, sale to a company and insolvency of partner's firm) .

Unit 3. Accounting for share Capital

- Share and share capital : nature and types
- Accounting for share capital: issue and allotment of equity shares, private placement of shares, Public subscription of shares - over subscription and under subscription of shares; Issue at par and at premium and at discount, calls in advance and arrears, issue of shares for consideration other than cash.
- Accounting treatment of forfeiture and re-issue of shares.
- Disclosure of share capital in company's Balance Sheet only.

Unit 4. Accounting for Debentures

- Debentures: Issue of debentures at par, at premium and at discount. Issue of debentures for consideration other than cash, debentures as collateral security, interest on debentures
- Redemption of debentures : Lump sum, draw of lots and conversion.

PART B: Financial Statement Analysis

Unit5. Analysis of financial Statements

- Financial statements of a company: balance sheet of a company in the prescribed form with major headings and sub headings (as per schedule VI to the Companies Act 1956).
- Financial Statement Analysis: objectives and limitations.
- Tools for Financial Statement Analysis: comparative statements, common size statements, cash flow analysis, ratio analysis.
- Accounting Ratios: objectives and classification.
- Liquidity ratios: current ratio and quick ratio.
- Solvency Ratios: Debt to Equity Ratio, Total Asset to Debt Ratio, Proprietary Ratio, Interest Coverage Ratio.
- Activity ratios: Stock Turnover Ratio, Debtors Turnover Ratio, Creditors Turnover Ratio, Working Capital Turnover Ratio.
- Profitability Ratios : Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio and Return on Investment.

Unit 6. Cash Flow Statement

- Meaning, objectives and preparation (as per AS 3 revised) (Indirect Method)

Unit7. Project work

- Kindly refer to the Guidelines published by the CBSE.

OR

Part C: Computerised Accounting

Unit 5 Overview of Computerised Accounting System

- Introduction : Application in Accounting
- Features of Computerised Accounting System
- Structure of CAS
- Software Packages:
 - Generic

- Specific
- Tailored

Unit 6 Accounting Application of Electronic Spread Sheet

- Concept of Electronic Spreadsheet
- Features offered by Electronic Spreadsheet
- Application in Generating Accounting Information I
 - Payroll
- Data Presentation
 - Graphs, Charts and Diagrams

Unit 7 Using Computerized Accounting System

- Steps in installation of CAS, codification and Hierarchy of account heads, creation of accounts.
- Data : Entry, Validation and Verification
- Adjusting entries, preparation of balance sheet, profit and loss account with closing entries and opening entries
- Need and security features of the system

Unit 8 Database Management System (DBMS)

- Concept and Features of DBMS
- DBMS in Business Application
- Generating Accounting Information 1
 - Payroll
- Generating Accounting Information 2
 - Debtors and Creditors
 - Bank Reconciliation Statement
 - Asset Accounting
 - Inventory Accounting

Unit 9. Practical Work

- Please refer to the guidelines published by CBSE.

20. ENTREPRENEURSHIP (Code No. 066)

RATIONALE

Development of school curriculum is a dynamic process responsive to the society and reflecting the needs and aspiration of its learners. Fast changing society deserves changes in educational curriculum particularly to establish relevance to emerging socio-economic environment; to ensure equity of opportunity and participation and finally promoting concern for excellence. In this context the course on entrepreneurship aims at instilling and stimulating human urge for excellence by realizing individual potential for generating and putting to use the inputs, relevant to social prosperity and thereby ensure decent means of living for every individual.

OBJECTIVES

- Acquiring Entrepreneurial Spirit and be Enterprising in all walks of life.
- Familiarization with various uses of human resource for earning decent means of living.
- Understanding the concept and process of entrepreneurship - its contribution and role in the growth and development of individual and the nation.
- Acquiring entrepreneurial quality, competency and motivation
- Learning the process and skills of creation and management of entrepreneurial venture.

CLASS XI

THEORY

Total Marks: 70

Unit I: Entrepreneurship and Human Activities

30 Marks

A. Entrepreneurship

- Concept, Functions and need
- Entrepreneurship : Characteristics and Competency
- Relevance of Entrepreneurship to Socio-Economic Gain: generating National Wealth, creating Wage and Self -Employment, Micro, Small and Medium Enterprises, Optimizing Human and Natural Resource and Solving Problems in the path of prosperity, building enterprising Personality and Society.
- Process of Entrepreneurship Development.

B. Entrepreneurial Pursuits and Human Activities:

- Nature, Purpose and pattern of Human Activities: Economic and Non-Economic, Need for innovation.
- Rationale and Relationship of Entrepreneurial pursuits and Human Activities.

Unit II: Acquiring Entrepreneurial Values and Motivation 30 Marks

- Entrepreneurial Values, Attitude and Motivation-Meaning and concept.
- Developing Entrepreneurial Motivation and Competency - concept and process of Achievement Motivation, Self-efficacy, Creativity, Risk Taking, Leadership, Communication and Influencing Ability and Planning Action.
- Barriers to Entrepreneurship
- Help and support to Entrepreneurs

Unit III: Introduction to Market Dynamics 10 Marks

- Understanding a Market
- Competitive Analysis of the Market
- Patents, Trademarks and Copyright

PRACTICAL 30 Marks

- I. Study visit by students to any enterprise of own choice. With the help of a schedule/questionnaire the students will record observation regarding - the background of entrepreneur, reasons for selecting the entrepreneurial career, starting the enterprise, the type of enterprise, the process of setting this enterprise, products/services, production process, investment made and marketing practices followed, profit or loss, growth and development, problems faced, institutions/organisations which offer support and entrepreneur's level and type of satisfaction.
- II. Preparation of a brief report based on the observations made during study-visit to an enterprise.

CLASS XII

THEORY: Total marks:70

Unit I: Entrepreneurial Opportunities and Enterprise Creation 20 Marks

- * Sensing Entrepreneurial Opportunities
- * Environment Scanning
- * Market Assessment
- * Identification of Entrepreneurial Opportunities
- * Selection of an Enterprise
- * Steps in setting up of an Enterprise

Unit II: Enterprise Planning and Resourcing 20 Marks

- * Business Planning - Preparation of a Project Report
- * Resource Assessment -Financial and Non - Financial

- * Fixed and Working Capital Requirement, Funds, Flows, Profit Ratios, Break Even Analysis etc.
- * Mobilising Resources - Sources and Means of Fund, Facilities and Technologies for starting an Enterprise.
- * Organising/Production of goods and services - quality, quantity and flow of inputs.

Unit III: Enterprise Management

30 Marks

- (a) General management: Basic Management functions.
- (b) Managing Market:
 - Meaning, Functions of Marketing, Marketing Mix:
 - * Product
 - * Price
 - * Place
 - * Promotion (advertising and sales promotion)
- (c) Managing Finance - Sources of Long Term and Short Term Finances
 - * Determination of Cost, Income, Calculation of Profit/Loss.
- (d) Managing Growth and Sustenance -Affecting Change, Modernisation, Expansion, Diversification and Substitution.
- (e) Entrepreneurial Discipline - Laws of Land, Ecology, Consumer's Concept, Adherence to Contract and Credits.

PRACTICAL

Introduction:

The main objective of the course in Entrepreneurship is to generate in the students initiative, self-reliance and enthusiasm so as to empower them to become entrepreneurs both in spirit and performance. A number of skills such as observation, evaluation, communication, resource mobilization and management, risk assessment ,team building etc. are also to be developed in the students. Leadership qualities, sensitivity to business ethics and adherence to a positive value system are the core issues that the course highlights while presenting different concepts related to entrepreneurship.

Such a course should necessarily have a strong experiential component in the form of practical work. The objectives of the practical work are:

- 1 To introduce the students to the world of business by developing in them the core skills and competencies required for an entrepreneur.
2. To develop in the students qualities such as leadership, self-confidence, initiative, facing uncertainties, commitment, creativity, people and team building, integrity and reliability.

3. To enable the students to acquire the skills and knowledge needed for conducting surveys, collecting, recording and interpreting data and preparing simple estimates of demand for products and services.
4. To guide the students to prepare a Project Report.
5. To equip the students with knowledge and skills needed to plan and manage an enterprise through case studies conducted and recorded by the students in different fields such as resource assessment, market dynamics, finance management, cost determination, calculation of profit and loss etc.
6. To instill in the students important values and entrepreneurial discipline.

FORMAT

Total marks: 30

1.	Project Report/Survey Report	10 Marks
2.	Viva-Voce on PW /SR	05 Marks
3.	Case Study	10 Marks
4.	Problem Solving	05 Marks
1.	Project Report/Market Survey Report	10 Marks

a) Project Report:

Preparation of a Project Report for an enterprise involving products/services

Students may be provided adequate guidance to choose a project based on their interests and availability of information and authentic inputs in the locality. The specimen proforma of project report given in the textbook may be used for preparing the report. However, mechanical preparation of the report by filling in the information in the proforma should be discouraged. Further, as the students will be required to appear for a Viva-voce on the basis of their projects, sufficient care should be taken by the students to prepare the report after studying the various aspects involved thoroughly. In a nutshell, the project report should lead to viable enterprise.

b) Market Survey Report

Market research is the process and technique of finding out who your potential customers are and what they want. The survey may be on products and services already available in the market or students may also conduct surveys for new products and services. The report of the survey should be organised under the following broad headings:

1. Objectives.
2. Methods and tools (interviews ,questionnaires etc.) to be used to collect information.
3. Records of data and information.
4. Analysis of data and information.
5. Interpretation and conclusion.

For example, a survey may be conducted to find out the choice of households in toiletry soap,

tooth paste etc. The data may be analysed to establish a pattern that may be useful to an entrepreneur.

Guidelines for assessment of Project Report / Survey Report

1. Presentation: Format, Clarity, Use of graphs, tables and other visuals, organisation, methodical recording of data and information and general neatness of execution. 5 marks
2. Originality and Creativity 3 marks
3. Authenticity of information and correctness of calculations and general feasibility of the project/ sustainability of conclusion drawn in the survey. 2 marks

2. Viva Voce on the Project /Market Survey Report 5 Marks

The questions should establish that the report is the original work of the student and that the student has a reasonably clear understanding of the work carried out by him/her.

Entrepreneurial qualities such as leadership, self-belief, creativity, originality, initiative etc. may also be assessed by asking a variety of questions related to the report.

3. Case Study 10 marks

A case study is a focused research on an organisation, enterprise, practice, behaviour or person undertaken to highlight an aspect that the study attempts to examine. For instance, a case study may be conducted on the pollution control methods being employed by an industry. Or a successful industrialist may be chosen as a subject of a case study to analyze and understand the strategies that the industrialist adopted :to achieve success.

Ideally, a case study should be conducted on subjects with the objectives of bringing to the fore beliefs, practices, strategies, values etc. that have made them what they are. Such studies help us to understand the way in which great minds think and operate. We may also conduct case studies on failures; why a company collapsed, how a service lost its market etc. From both the types of case study, we learn lessons; how to do something or how not to do something. They also provide valuable insight into the processes involved in an enterprise.

A few topics are suggested for carrying out case studies:

- i) Drawing a profile of a successful entrepreneur.
- ii) Studying a public sector undertaking and highlighting its success/failure, by analyzing the factors responsible.
- iii) Studying a small scale unit in the locality to bring out the procedures and processes adopted by the unit to become a feasible business venture.
- iv) A study of competition in business by choosing two or more rivals in the market and analyzing their strengths and weaknesses.
- v) Take the school itself for a case study and analyze any two aspects of the school plant for chalking out a plan of action: infrastructure, academics, co-curricular activities etc.
- vi) A case study on a thriving fast food shop/restaurant in your locality. What makes it so popular?

- vii) A case study on the ways in which a business unit has mobilised its financial resources.
- viii) A case study on the enterprise management techniques adopted by a business house.
- ix) A case study on the marketing strategies of a successful consumer durable company.
- x) A case study on the financial management of a Public Limited Company.
- xi) A case study on any Specialized Institution that supports and guides the establishment of a small scale unit.
- xii) Studying the balance sheets of two big private companies to assess their trade and credit worthiness.
- xiii) Studying the inventory management of a large manufacturing industry to ascertain the processes involved for optimizing cost.
- xiv) Carrying out a case study on an established industrial house/company to find out the value system of the company and how it fulfils its social commitment/obligations.
- xv) Carrying out a case study on an established industry to ascertain the processes followed to reduce/prevent pollution.
- xvi) Study on environment friendly companies and their contribution to preservation.

Assessment of Case Studies

- | | | |
|-----|--|---------|
| i) | Presentation: Format, accuracy, clarity, authenticity and general neatness | 7 marks |
| ii) | Analysis and Conclusions | 3 marks |

4. Problem Solving 5 marks

In this session, the students will be required to solve a problem in the form of a written test. The examiner may choose any problem related to the units in class XII Text Book and set it for the class. The problem may be in the following areas:

- a. How to scan the environment to establish the feasibility of a project.
- b. Given certain figures showing the consumption pattern of a product, drawing conclusions that have a bearing on similar products.
- c. Carrying out market assessment for a given product/service to ascertain the feasibility factor.
- d. Assessment of Working Capital.
- e. Calculation of total cost of production.
- f. Calculation of break-even point.
- g. Determining location of a manufacturing unit.
- h. Problems in inventory control (calculation of the Economic Order Quantity and carrying out ABC analysis).
- i. Applying Pricing methods to determine the price of a product or service.

- j. Applying promotion mix to plan a sales campaign for a product or service.
- k. Working out a simple budget for a given task or job.

Assessment of Answers

The examiner may prepare five problems which are solved by him/her before they are presented to the students. The student may choose anyone of the problems and solve it, showing the different steps/different reasons involved in the solution. If the problem does not involve actual calculations, it may not have anyone correct answer. So weightage should be given not only to the final answer but to the entire process of problem solving that the student has followed. Originality and innovative spirit should be rewarded. The students should not be penalized for spelling errors, grammatical mistakes etc. as long as the answer is coherent. Where definite formulas are involved, accuracy should be given due weightage.

LIST OF SUGGESTED REFERENCE BOOKS

01. Entrepreneurship - Class XI - C. B. S. E., Delhi.
02. Entrepreneurship - Class XII- C. B. S. E., Delhi.
03. Udyamita (in Hindi) by Dr. M M.P. Akhouri and
S.P.Mishra, pub. by National Institute for Entrepreneurship and Small Business Development (NIESBUD), NSIC-PATC Campus, Okhla.
04. Trainer's Manual on Developing Entrepreneurial Motivation, By M.M.P. Aukhori, S.P. Mishra and R. Sengupta, Pub. by (NIESBUD), NSIC-PATC Campus, Okhla.
05. Behavioral Exercises and games - manual for trainers, learning systems, by M. V. Despande, P. Mehta and M. Nandami.
06. Product Selection by Prof. H.N. Pathak, Pub. By (NIESBUD), NSIC-PATC Campus, Okhla.
07. Entrepreneurial Development - Dr. S. Moharana and Dr. C.R.Dash, Pub. by RBSA Publishers, Jaipur.
08. Entrepreneurial Development by S.S.Khanna, Published by S.Chand & Company Ltd., Ram Nagar, New Delhi.
09. Entrepreneurial Development by C.B. Gupta and N.P.Srinivasan, Publisher Sultan Chand & Sons, 1992.
10. Entrepreneurship Development - Principles, Policies and Programmes by P. Saravanel, Publishers Ess Pee Kay Publishing House, Madras.
11. Entrepreneurship, Growth and Development, by Rashi Ali, Pub. by Chugh Publication and Strech Road, Civil Lines, Post Box No. 101, Allahabad-211991.
12. Entrepreneur and Entrepreneurship Development and Planning in India, by D.N.Mishra, pub. by Chugh Publication, Allahabad.

13. Aoudhogik Disha Nirdesh (in Hindi) Pub. by Centre for Entrepreneurship Development, M.P. (CEDMAP), 60, Jail Road, Jhangerbad, Bhopal-462008.
14. Entrepreneur, Industry and Self-employment Project, Part-1 and 2(in Hindi), Pub. by Centre for Entrepreneurship Development, M.P. (CEDMAP), 60 Jail Road, Jhangerbad, Bhopal-462008.
15. Small Scale Industry & Self-Employment Projects, Part-1 and 2 (in Hindi), Pub. by Centre for Entrepreneurship Development, M.P. (CEDMAP),60 Jail Road, Jhangerbad Bhopal.

Magazines

01. Udyamita Samachar Patra,(Monthly, Hind), Pub. by Centre for Entrepreneurship Development, M.P.(CEDMAP), 60 Jail Road, Jhangerbad, Bhopal-462008.
02. Science Tec. Entrepreneur (A Bi Monthly Publication), centre for Enterprenurship Development, M.P. (CEDMAP), 60 Jail Road, Jhangerbad , Bhopal -462008.
03. Laghu Udhyog Samachar.
04. Project Profile by DCSSI.
05. Project Profile by Pub. Centre for Enterpreeurship Development, M.P. (CEDMAP), 60 Jail . Road, Jhangerbad, Bhopal-462008.

21. HISTORY (Code No. 027)

Rationale

Through a focus on a series of critical historical issues and debates (class XI) or on a range of important historical sources (class XII), the students would be introduced to a set of important historical events and processes. A discussion of these themes, it is hoped, would allow students not only to know about these events and processes, but also to discover the excitement of doing history.

Objectives

- Effort in these senior secondary classes would be to emphasize to students that history is a critical discipline, a process of enquiry, a way of knowing about the past, rather than just a collection of facts. The syllabus would help them understand the process through which historians write history, by choosing and assembling different types of evidence, and by reading their sources critically. They will appreciate how historians follow the trails that lead to the past, and how historical knowledge develops
- The syllabus would also enable students to relate/compare developments in different situations, analyze connections between similar processes located in different time periods, and discover the relationship between different methods of enquiry within history and the allied disciplines.
- The syllabus in class XI is organized around some major themes in world history. The themes have been selected so as to (i) focus on some important developments in different spheres - political, social, cultural and economic, (ii) study not only the grand narratives of development - urbanization, industrialization and modernization - but also to know about the processes of displacements and marginalization. Through the study of these themes students will acquire a sense of the wider historical processes as well as an idea of the specific debates around them.
- The treatment of each theme in class XI would include (a) an overview of the theme under discussion, (b) a more detailed focus on one region of study, (c) an introduction to a critical debate associated with the issue.
- In class XII the focus will shift to a detailed study of some themes in ancient, medieval and modern Indian history although the attempt is to soften the distinction between what is conventionally termed as ancient, medieval and modern. The object would be to study a set of these themes in some detail and depth rather than survey the entire chronological span of Indian history. In this sense the course will be built on the knowledge that the students have acquired in the earlier classes.
- Each theme in class XII will also introduce the student to one type of source for the study of history. Through such a study students would begin to see what different types of sources can reveal and what they cannot tell. They would come to know how historians analyze these sources, the problems and difficulties of interpreting each type of source, 'and the way a larger picture of an event, a historical process, or a historical figure, is built by looking at different types of sources.

- Each theme for class XII will be organized around four subheads: (a) a detailed overview of the events, issues and processes under discussion, (b) a summary of the present state of research on the theme, (c) an account of how knowledge about the theme has been acquired, (d) an excerpt from a primary source related to the theme, explaining how it has been used by historians.
- While the themes in both these classes (XI and XII) are arranged in a broad chronological sequence, there are overlaps between them. This is intended to convey a sense that chronological divides and periodization do not always operate in a neat fashion.
- In the textbooks each theme would be located in a specific time and place. But these discussions would be situated within a wider context by (a) plotting the specific event within time-lines, (b) discussing the particular event or process in relation to developments in other places and other times.

Class XI

Paper One	Time: 3 hours	100 Marks
Units	Periods	Marks
1. Introduction to World History	8	-
Section A: Early Societies	32	15
2. Introduction	6	
3. From the beginning of time	14	
4. Early Cities	12	
Section B: Empires	40	25
5. Introduction	6	
6. An empire across three continents	12	
7. Central Islamic lands	12	
8. Nomadic Empires	10	
Section C: Changing Traditions	44	25
9. Introduction	6	
10. Three orders	12	
11. Changing cultural traditions	14	
12. Confrontation of cultures	12	
Section D: Paths to Modernization	46	25
13. Introduction	8	
14. The Industrial Revolution	12	
15. Displacing indigenous People	12	
16. Paths to modernization	14	
Map work (units 1-16)	10	10

Class XI: Themes in World History

Themes	Periods	Objectives
<p>1. Introduction to World History (8)</p> <p>SECTION A: EARLY SOCIETIES</p> <p>2. Introduction (6)</p> <p>3. From the Beginning of Time (14) Focus: Africa, Europe till 15000 BC (a) Views on the origin of human beings. □ (b) Early societies. (c) Historians' views on present-day hunting-gathering societies.</p> <p>4. Early Cities (12) Focus: Iraq, 3rd millennium BC (a) Growth of towns. (b) Nature of early urban societies. (c) Historians' Debate on uses of writing.</p> <p>SECTION B: EMPIRES</p> <p>5. Introduction (6)</p> <p>6. An Empire across Three Continents (12) Focus: Roman Empire, 27 B.C to A.D 600. (a) Political evolution (b) Economic expansion (c) Religion (d) Late Antiquity. (e) Historians views on the institution of Slavery.</p> <p>7. Central Islamic Lands: (12) Focus: 7th to 12th centuries (a) Polity (b) Economy (c) Culture. (d) Historians viewpoints on the nature of the crusades.</p> <p>8. Nomadic Empires: (10) Focus: the Mongol, 13th to 14th century (a) The nature of nomadism. (b) Formation of empires. (c) Conquests and relations with other states. (d) Historians' views on nomadic societies and state formation.</p>		<p>□ Familiarize the learner with ways of reconstructing human evolution.</p> <p>□ Discuss whether the experience of present-day hunting-gathering people can be used to understand early societies.</p> <p>□ Familiarize the learner with the nature of early urban centres.</p> <p>□ Discuss whether writing is significant as a marker of civilization.</p> <p>□ Familiarize the learner with the history of a major world empire</p> <p>□ Discuss whether slavery was a significant element in the economy.</p> <p>□ Familiarize the learner with the rise of Islamic empires in the Afro-Asian territories and its implications for economy and society.</p> <p>□ Understand what the crusades meant in these regions and how they were experienced.</p> <p>□ Familiarize the learner with the varieties of nomadic society and their institutions.</p> <p>□ Discuss whether state formation is possible in nomadic societies.</p>

Themes	Objectives
<p>SECTION C: CHANGING TRADITIONS</p> <p>9. Introduction (6)</p> <p>10. Three Orders (12) Focus: Western Europe, 13th-16th century (a) Feudal society and economy: (b) Formation of states. (c) Church and Society. (d) Historian’s views on decline of feudalism</p> <p>11. Changing cultural traditions (14) Focus on Europe, 14th to 17th century’. (a) New ideas, and new trends in literature and arts. (b) Relationship with earlier ideas (c) The contribution of West Asia. (d) Historian’s view points on the validity of the notion ‘European Renaissance’.</p> <p>12. Confrontation of Cultures (12) Focus on the America 15th to 18th century. (1) European voyages of exploration. (b) Search for gold; enslavement, raids, extermination. (c) Indigenous people and cultures - the Arawaks, the Aztecs, the Incas. (c) The history of displacements. (d) Historian's view points on the slave trade,</p>	<ul style="list-style-type: none"> ❑ Familiarize the learner with the nature of the economy and society of this period and the changes within them. ❑ Show how the debate on the decline of feudalism helps in understanding processes of transition. ❑ Explore the intellectual trends in the period. ❑ Familiarize students with the paintings and buildings of the period ❑ Introduce the debate around the idea of ‘Renaissance’. ❑ Discuss changes in European economy that led to the voyages. ❑ Discuss the implications of the conquests for the indigenous people. ❑ Explore the debate on the nature of the slave trade and see what this debate tells us about the meaning of these “discoveries”.
<p>SECTION D: PATHS TO MODERNIZATION</p> <p>13. Introduction (8)</p> <p>14. The Industrial Revolution. (12) Focus on England, 18th and 19th century. (a) Innovations and technological change (b) Patterns of growth. (c) Emergence of a working class. (d) Historians' viewpoints Debate, 'Was there an Industrial Revolution?'</p>	<ul style="list-style-type: none"> ❑ Understand the nature of growth in the period and its limits. ❑ Initiate students to the debate on the idea of industrial revolution.

Themes		Objectives
<p>15. Displacing indigenous People. (12) Focus on North America and Australia, 18th-20th century, (a) European colonists in North America and Australia. (b) Formation of white settler societies. (c) Displacement and repression of local people, (d) Historians view points on the impact of European settlement on indigenous population.</p>		<ul style="list-style-type: none"> <input type="checkbox"/> Sensitize students to the processes of displacements that accompanied the development of America and Australia. <input type="checkbox"/> Understand the implications of such processes for the displaced populations.
<p>16. Paths to Modernization. (14) Focus on East Asia. Late 19th and 20th century. (a) Militarization and economic growth in Japan. (b) China and the Communist alternative. (d) Historians' Debate on meaning of modernization</p>		<ul style="list-style-type: none"> <input type="checkbox"/> Make students aware that transformation in the modern world takes many different forms. <input type="checkbox"/> Show how notions like 'modernization' need to be critically assessed.
17. Map Work on Units 1-15 (10)		

Class XII

Time: 3 hours

Paper One

100 Marks

Units	Periods (180)	Marks
<p>Themes in Indian History Part-I Units 1 - 4</p>	45	25
<p>Themes in Indian History Part-II Units 5 - 9</p>	55	30
<p>Themes in Indian History Part-III Units 10 - 15</p>	70	35
Unit 16 : Map Work	10	10

Class XII: Themes in Indian History		
Themes	Period (45)	Objectives
PART - I		
1. The Story of the First Cities: Harappan Archaeology.	(11)	<ul style="list-style-type: none"> ❑ Familiarize the learner with early urban centres as economic and social institutions. ❑ Introduce the ways in which new data can lead to a revision of existing notions of history. ❑ Illustrate how archaeological reports are analyzed and interpreted by scholars.
2. Political and Economic History: How Inscriptions tell a story.	(11)	<ul style="list-style-type: none"> ❑ Familiarize the learner with major trends in the political and economic history of the subcontinent. ❑ Introduce inscriptional analysis and the ways in which these have shaped the understanding of political and economic processes.
3. Social Histories: Using the Mahabharata	(12)	<ul style="list-style-type: none"> ❑ Familiarize the learner with issues in social history. ❑ Introduce strategies of textual analysis and their use in reconstructing social history.
4. A History of Buddhism: Sanchi Stupa	(11)	<ul style="list-style-type: none"> ❑ Discuss the major religious developments in early India. ❑ Introduce strategies of visual analysis and their use in reconstructing histories of religion.

Themes	Period (45)	Objectives
PART-II		
<p>5. Agrarian Relations: The <i>Ain-i-Akbari</i> (11)</p> <p>Broad overview: (a) Structure of agrarian relations in the 16th and 17th centuries. (b) Patterns of change over the period.</p> <p>Story of Discovery: Account of the compilation and translation of <i>Ain-i-Akbari</i>.</p> <p>Excerpt: from the <i>Ain-i-Akbari</i></p> <p>Discussion: Ways in which historians have used the text to reconstruct history.</p>		<ul style="list-style-type: none"> ❑ Discuss developments in agrarian relations. ❑ Discuss how to supplement official documents with other sources.
<p>6. The Mughal Court: Reconstructing Histories through Chronicles (11)</p> <p>Broad Overview: (a) Outline of political history 15th-17th centuries. (b) Discussion of the Mughal court and politics.</p> <p>Story of Discovery: Account of the production of court chronicles, and their subsequent translation and transmission.</p> <p>Excerpts: from the <i>Akbarnama</i> and <i>Padshahnama</i>.</p> <p>Discussion: Ways in which historians have used the texts to reconstruct political histories.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with the major landmarks in political history ❑ Show how chronicles and other sources are used to reconstruct the histories of political institutions.
<p>7. New Architecture: Hampi (11)</p> <p>Broad Overview: (a) Outline of new buildings during Vijayanagar period-temples, forts, irrigation facilities. (b) Relationship between architecture and the political system..</p> <p>Story of Discovery: Account of how Hampi was found.</p> <p>Excerpt: Visuals of buildings at Hampi</p> <p>Discussion: Ways in which historians have analyzed and interpreted these structures.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with the new buildings that were built during the time. ❑ Discuss the ways in which architecture can be analyzed to reconstruct history.
<p>8. Religious Histories: The Bhakti-Sufi tradition(11)</p> <p>Broad Overview: (a) Outline of religious developments during this period. (b) Ideas and practices of the Bhakti-Sufi saints.</p> <p>Story of Transmission: How Bhakti-Sufi compositions have been preserved.</p> <p>Excerpt: Extracts from selected Bhakti Sufi works.</p> <p>Discussion: Ways in which these have been interpreted by historians.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with religious developments. ❑ Discuss ways of analyzing devotional literature as sources of history.

Themes	Periods	Objectives
<p>9. Medieval Society Through Travellers' Accounts (11)</p> <p>Broad Overview: Outline of social and cultural life as they appear in travellers' accounts.</p> <p>Story of their writings: A discussion of where they travelled, why they travelled, what they wrote, and for whom they wrote.</p> <p>Excerpts: from Alberuni, Ibn Batuta, Bernier.</p> <p>Discussion: What these travel accounts can tell us and how they have been interpreted by historians.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with the salient features of social histories described by the travellers. ❑ Discuss how travellers' accounts can be used as sources of social history.
PART - III (70)		
<p>10. Colonialism and-Rural Society: Evidence from Official Reports (11)</p> <p>Broad overview : (a). Life of zamindars, peasants and artisans in the late 18 century (b) East India Company, revenue settlements and surveys. (c) Changes over the nineteenth century.</p> <p>Story of official records: An account of why official investigations into rural societies were under taken and the types of records and reports produced.</p> <p>Excerpts: From Firminger's Fifth Report, Accounts of Frances Buchanan-Hamilton, and Deccan Riots Report,</p> <p>Discussion: What the official records tell and do not tell, and how they have been used by historians.</p>		<ul style="list-style-type: none"> ❑ Discuss how colonialism affected Zamindars, peasants and artisans. ❑ Understand the problems and limits of using official sources for understanding the lives of people.
<p>11. Representations of 1857 (11)</p> <p>Broad Overview: (a) The events of 1857-58. (b) How these events were recorded and narrated.</p> <p>Focus: Lucknow.</p> <p>Excerpts: Pictures of 1857. Extracts from contemporary accounts.</p> <p>Discussion: How the pictures of 1857 shaped British opinion of what had happened.</p>		<ul style="list-style-type: none"> ❑ Discuss how the events of 1857 are being reinterpreted. ❑ Discuss how visual material can be used by historians
<p>12. Colonialism and Indian Towns: Town Plans and Municipal Reports (11)</p> <p>Broad Overview: The growth of Mumbai, Chennai, hill stations and cantonments in the 18th and 19th century.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with the history of modern urban centres.

Themes	Periods	Objectives
<p>Excerpts: Photographs and paintings. Plans of cities. Extract from town plan reports. Focus on Kolkata town planning.</p> <p>Discussion: How the above sources can be used to reconstruct the history of towns. What these sources do not reveal.</p>		<ul style="list-style-type: none"> ❑ Discuss how urban histories can be written by drawing on different types of sources.
<p>13. Mahatma Gandhi through Contemporary Eyes (13)</p> <p>Broad Overview: (a) The nationalist movement 1918 - 48, (b) The nature of Gandhian politics and leadership.</p> <p>Focus: Mahatma Gandhi in 1931.</p> <p>Excerpts: Reports from English and Indian language newspapers and other contemporary writings.</p> <p>Discussion: How newspapers can be a source of history.</p>		<ul style="list-style-type: none"> ❑ Familiarize the learner with significant elements of the nationalist movement and the nature of Gandhian leadership. ❑ Discuss how Gandhi was perceived by different groups. ❑ Discuss how historians need to read and interpret newspapers, diaries and letters as historical source.
<p>14. Partition through Oral Sources (12)</p> <p>Broad Overview: (a) The history of the 1940s; (b) Nationalism. Communalism and Partition.</p> <p>Focus: Punjab and Bengal.</p> <p>Excerpts: Oral testimonies of those who experienced partition.</p> <p>Discussion: Ways in which these have been analyzed to reconstruct the history of the event.</p>		<ul style="list-style-type: none"> ❑ Discuss the last decade of the national movement, the growth of communalism and the story of Partition. ❑ Understand the events through the experience of those who lived through these years of communal violence. ❑ Show the possibilities and limits of oral sources.
<p>15. The Making of the Constitution (12)</p> <p>Broad Overview: (a) Independence and the new nation state. (b) The making of the constitution. .</p> <p>Focus: The Constitutional Assembly debates.</p> <p>Excerpts: from the debates.</p> <p>Discussion: What such debates reveal and how they can be analyzed.</p>		<ul style="list-style-type: none"> ❑ Familiarize students with the history of the early years after independence. ❑ Discuss how the founding ideals of the new nation state were debated and formulated. ❑ Understand how such debates and discussions can be read by historians.
<p>16. Map Work on Units 1-15 (10)</p>		

Recommended text books :

1. Themes in World History, Class XI, Published by NCERT
2. Themes in Indian History, Part I, Class XII, Published by NCERT
2. Themes in Indian History Part-II, Class XII, Published by NCERT
3. Themes in Indian History Part-III, Class XII, Published by NCERT

Note : The above textbooks are also available in Hindi medium.

22. POLITICAL SCIENCE (Code No 028)

Rationale

At the senior secondary level students who opt Political Science are given an opportunity to get introduced to the diverse concerns of a Political Scientist. At this level there is a need to enable students to engage with political processes that surround them and provide them with an understanding of the historical context that has shaped the present. The different courses introduce the students to the various streams of the discipline of political science: political theory, Indian politics and international politics. Concerns of the other two streams — comparative politics and public administration — are accommodated at different places in these courses. In introducing these streams, special care has been taken not to burden the students with the current jargon of the discipline. The basic idea here is to lay the foundations for a serious engagement with the discipline at the undergraduation stage.

Objectives:

INDIAN CONSTITUTION AT WORK

- Enable students to understand historical processes and circumstances in which the Constitution was drafted.
- Provide opportunity for students to be familiar with the diverse visions that guided the makers of the Indian Constitution.
- Enable students to identify the certain key features of the Constitution and compare these to other constitutions in the world.
- Analyse the ways in which the provisions of the Constitution have worked in real political life.

POLITICAL THEORY

- Develop the skills for logical reasoning and abstraction
- Inculcate attention to and respect for viewpoints other than one's own
- Introduce students to the different political thinkers in relation to a concept and in everyday social life
- Enable students to meaningfully participate in a concern of current political life that surrounds them
- Encourage the students to analyse any unexamined prejudices that one may have inherited.

CONTEMPORARY WORLD POLITICS

- Enable the students to expand their horizons beyond India and make sense of the political map of contemporary world.
- Familiarise the students with some of the key political events and processes in the post cold war era.
- Equip students to be conscious of the way in which global events and processes shape our everyday lives.

- Strengthen their capacity for political analysis by thinking of contemporary developments in a historical perspective.

POLITICS IN INDIA AFTER INDEPENDENCE

- Enable students to be familiar with some of the key political events and figures in the post-independence period.
- Develop skills of political analysis through events and processes of recent history.
- Develop their capacity to link macro processes with micro situations and their own life.
- Encourage the students to take a historical perspective of making sense of the contemporary India.

Class XI

One Paper

Time 3hrs.

Marks 100

Units	Periods	Marks
Part A: Indian Constitution at work		
1. Constitution : Why & How?	12	10
2. Rights in the Indian Constitution	12	
3. Election and Representation	10	10
4. Executive	10	
5. Legislature	10	10
6. Judiciary	10	
7. Federalism	10	10
8. Local Governments	10	
9. Constitution as a living document.	10	10
10. The Philosophy of the constitution	10	
	104	50
Part B: Political Theory		
11. Political Theory : An Introduction	10	10
12. Freedom	10	
13. Equality	10	10
14. Social Justice	12	
15. Rights	10	10
16. Citizenship	10	
17. Nationalism	10	10
18. Secularism	10	
19. Peace	10	10
20. Development	10	
	102	50

Course Content:

Part A: Indian Constitution at work

- 1. The Constitution : Why and How? 12 Periods**
Why do we need a constitution?
The authority of a Constitution
- 2. Rights in the Indian Constitution 12 Periods**
The Importance of Rights, Fundamental Rights in the Indian Constitution, Directive Principles of State Policy, Relationship between Fundamental Rights and Directive Principles
- 3. Election and Representation 10 Periods**
Elections and Democracy, Election System in India, Reservation of Constituencies, Free and Fair Elections, Electoral Reforms
- 4. Executive 10 Periods**
What is an Executive? Different Types of Executive. Parliamentary Executive in India, Prime Ministers and Council of Ministers. Permanent Executive : Bureaucracy,
- 5. Legislature 10 Periods**
Why do we need a Parliament? Two Houses of Parliament. Functions and Power of the Parliament, Legislative functions, control over executive. Parliamentary committees. Self-regulation.
- 6. Judiciary 10 Periods**
Why do we need an Independent Judiciary? Structure of the Judiciary, Judicial Activism, Judiciary and Rights, Judiciary and Parliament
- 7. Federalism 10 Periods**
What is Federalism? Federalism in the Indian Constitution, Federalism with a strong Central Government, conflicts in India's federal system, Special Provisions.
- 8. Local Governments 10 Periods**
Why do we need Local Governments? Growth of Local Government in India, 73rd and 74th Amendments, implementation of 73rd and 74th Amendments
- 9. Constitution as a Living Document 10 Periods**
Are Constitutions static? The procedure to amend the Constitution. Why have there been so many amendments? Basic Structure and Evolution of the Constitution. Constitution as a Living Document
- 10. The Philosophy of the Constitution 10 Periods**
What is meant by Philosophy of the Constitution? The Political philosophy of our Constitution, Procedural Achievements, Criticisms

Part B: Political Theory

- 11. Political Theory: An Introduction** **10 Periods**
What is Politics? What do we study in Political Theory? Putting Political Theory to practice. Why should we study Political Theory?
- 12. Freedom** **10 Periods**
The Ideal of Freedom. What is Freedom? Why do we need constraints? Harm principle. Negative and Positive Liberty
- 13. Equality** **10 Periods**
Significance of Equality. What is Equality? Various dimensions of Equality. How can we promote Equality?
- 14. Social Justice** **12 Periods**
What is Justice? Just Distribution. Justice as fairness. Pursuing Social Justice
- 15. Rights** **10 Periods**
What are Rights? Where do Rights come from? Legal Rights and the State. Kinds of Rights. Rights and Responsibilities
- 16. Citizenship** **10 Periods**
What is citizenship? Citizen and Nation, Universal Citizenship, Global Citizenship
- 17. Nationalism** **10 Periods**
Nations and Nationalism, National Self-determination, Nationalism and Pluralism
- 18. Secularism** **10 Periods**
What is Secularism? What is Secular State? The Western and the Indian approaches to Secularism. Criticisms and Rationale of Indian Secularism.
- 19. Peace** **10 Periods**
What is Peace? Can violence ever promote peace? Peace and the State. Different Approaches to the pursuit of peace. Contemporary challenges to peace.
- 20. Development** **10 Periods**
What is development? Criticism of the dominant. Development Model. Alternative conceptions of development.

Class XII

One Paper

Time : 3 Hours

Marks 100

Content	Periods	Marks
Part A: Contemporary World-Politics		
Units		
1. Cold War Era	14	
2. The End of bipolarity	12	14
3. US Hegemony in World Politics	12	
4. Alternative centres of Power	10	16
5. Contemporary South Asia	12	
6. International Organizations	12	10
7. Security in Contemporary World	10	
8. Environment and Natural Resources	10	10
9. Globalisation	12	
	104	50
Part B: Politics in India since independence		
10. Challenges of Nation-Building	12	
11. Era of One-Party Dominance	12	16
12. Politics of Planned Development	10	
13. India's External relations	12	6
14. Challenges to the Congress System	12	12
15. Crisis of the Democratic order	12	
16. Rise of Popular Movements	10	
17. Regional aspirations	10	16
18. Recent Developments in Indian Politics	12	
	102	50

COURSE CONTENTS

Periods

Part A: Contemporary World Politics

- 1. Cold War Era** **14**
Emergence of two power blocs after the second world war. Arenas of the cold war. Challenges to Bipolarity: Non Aligned Movement, quest for new international economic order. India and the cold war.
- 2. The End of Bipolarity** **12**
New entities in world politics: Russia, Balkan states and Central Asian states, Introduction of democratic politics and capitalism in post-communist regimes. India's relations with Russia and other post-communist countries.
- 3. US Hegemony in World Politics** **12**
Growth of unilateralism: Afghanistan, first Gulf War, response to 9/11 and attack on Iraq. Dominance and challenge to the US in economy and ideology. India's renegotiation of its relationship with the USA.
- 4. Alternative Centres of Power** **10**
Rise of China as an economic power in post-Mao era, creation and expansion of European Union, ASEAN. India's changing relations with China.
- 5. Contemporary South Asia in the Post-Cold War Era** **12**
Democratisation and its reversals in Pakistan and Nepal. Ethnic conflict in Sri Lanka, Impact of economic globalization on the region. Conflicts and efforts for peace in South Asia. India's relations with its neighbours.
- 6. International Organizations** **12**
Restructuring and the future of the UN. India's position in the restructured UN. Rise of new international actors: new international economic organisations, NGOs. How democratic and accountable are the new institutions of global governance?
- 7. Security in Contemporary World** **10**
Traditional concerns of security and politics of disarmament. Non-traditional or human security: global poverty, health and education. Issues of human rights and migration.
- 8. Environment and Natural Resources** **10**
Environment movement and evolution of global environmental norms. Conflicts over traditional and common property resources. Rights of indigenous people. India's stand in global environmental debates.
- 9. Globalisation** **12**
Economic, cultural and political manifestations. Debates on the nature of consequences of globalisation. Anti-globalisation movements. India as an arena of globalization and struggle against it.

Part B: Politics in India Since Independence

- 10. Challenges of Nation-Building** **12**
Nehru's approach to nation-building: Legacy of partition: challenge of 'refugee' resettlement, the Kashmir problem. Organisation and reorganization of states; Political conflicts over language.
- 11. Era of One-Party Dominance** **12**
First three general elections, nature of Congress dominance at the national level, uneven dominance at the state level, coalitional nature of Congress. Major opposition parties.
- 12. Politics of Planned Development** **10**
Five year plans, expansion of state sector and the rise of new economic interests. Famine and suspension of five year plans. Green revolution and its political fallouts.
- 13. India's External Relations** **12**
Nehru's foreign policy. Sino-Indian war of 1962, Indo-Pak war of 1965 and 1971. India's nuclear programme and shifting alliances in world politics.
- 14. Challenges to the Congress System** **12**
Political succession after Nehru. Non-Congressism and electoral upset of 1967, Congress split and reconstitution, Congress' victory in 1971 elections, politics of 'garibi hatao'.
- 15. Crisis of the Democratic Order** **12**
Search for 'committed' bureaucracy and judiciary. Navnirman movement in Gujarat and the Bihar movement. Emergency: context, constitutional and extra-constitutional dimensions, resistance to emergency. 1977 elections and the formation of Janata Party. Rise of civil liberties organisations.
- 16. Rise of New Social Movements** **10**
Farmers' movements, Women's movement, Environment and Development-affected people's movements. Implementation of Mandal Commission report and its aftermath.
- 17. Regional Aspirations** **10**
Rise of regional parties. Punjab crisis and the anti-Sikh riots of 1984. The Kashmir situation. Challenges and responses in the North East.
- 18. Recent Developments in Indian politics:** **12**
Participatory upsurge in 1990s. Rise of the JD and the BJP. Increasing role of regional parties and coalition politics. UF and NDA governments. Elections 2004 and UPA government.

Recommended text books:

1. Indian Constitution at Work, Class XI, Published by NCERT
2. Political Theory, Class XI, Published by NCERT
3. Contemporary World Politics, Class XII, Published by NCERT
3. Politics in India Since Independence, Class XII, Published by NCERT

Note : The above textbooks are also available in Hindi and Urdu versions.

23. GEOGRAPHY (Code No. 029)

Rationale

Geography is introduced as an elective subject at the senior secondary stage. After ten years of general education, students branch out at the beginning of this stage and are exposed to the rigours of the discipline for the first time. Being an entry point for the higher education, students choose geography for pursuing their academic interest and, therefore, need a broader and deeper understanding of the subject. For others, geographical knowledge is useful in daily lives because it is a valuable medium for the education of young people. Its contribution lies in the content, cognitive processes, skills and values that geography promotes and thus helps the students explore, understand and evaluate the environmental and social dimensions of the world in a better manner.

Since geography explores the relationship between people and their environment, it includes studies of physical and human environments and their interactions at different scales-local, state/region, nation and the world. The fundamental principles responsible for the varieties in the distributional pattern of physical and human features and phenomena over the earth's surface need to be understood properly. Application of these principles would be taken up through selected case studies from the world and India. Thus, the physical and human environment of India and study of some issues from a geographical point of view will be covered in greater detail. Students will be exposed to different methods used in geographical investigations.

Objectives

The course in geography will help learners:

- Familiarise themselves with the terms, key concepts and basic principles of geography;
- Search for, recognize and understand the processes and patterns of the spatial arrangement of the natural as well as human features and phenomena on the earth's surface;
- Understand and analyse the inter-relationship between physical and human environments and their impact;
- Apply geographical knowledge and methods of inquiry to new situations or problems at different levels-local, regional, national and global;
- Develop geographical skills, relating to collection, processing and analysis of data/information and preparation of report including maps and graphs and use of computers wherever possible; and
- Utilize geographical knowledge in understanding issues concerning the community such as environmental issues, socio-economic concerns, gender and become responsible and effective members of the community.

Part A: Fundamentals of Physical Geography

(Periods 75)

Class XI

One Theory Paper	3 Hours	70 Marks
Part A. Fundamentals of Physical Geography		35 (Marks)
Unit-1: Geography as a discipline		3
Unit-2: The Earth		5
Unit-3: Landforms		8
Unit-4: Climate		10
Unit-5: Water (Oceans)		4
Unit-6: Life on the Earth		3
Unit-7: Map work		2
Part B. India- Physical Environment		35 (Marks)
Unit-8: Introduction		3
Unit-9: Physiography		10
Unit-10: Climate, vegetation and soil		10
Unit-11: Natural hazards and Disasters		9
Unit-12: Map Work		3
Part C. Practical Work	3 Hours	30 Marks
Unit-1: Fundamentals of Maps		10
Unit-2: Topographic and Weather Maps		15
Unit-3 : Practical Record Book & Viva		5

Unit-1: Geography as a Discipline (Periods 3)

- Geography as an integrating discipline, as a science of spatial attributes;
- Branches of geography; importance of physical geography.

Unit-2: The Earth (Periods 10)

- Origin and evolution of the earth; Interior of the earth;
- Wegener's continental drift theory and plate tectonics;
- Earthquakes and volcanoes.

Unit-3: Landforms (Periods 18)

- Rocks: major types of rocks and their characteristics;
- Landforms and their evolution
- Geomorphic processes: weathering, mass wasting, erosion and deposition; soil-formation

Unit 4: Climate**(Periods 30)**

- Atmosphere- composition and structure; elements of weather and climate.
- Insolation-angle of incidence and distribution; heat budget of the earth-heating and cooling of atmosphere (conduction, convection, terrestrial radiation and advection); temperature-factors controlling temperature; distribution of temperature-horizontal and vertical; inversion of temperature.
- Pressure-pressure belts; winds-planetary, seasonal and local; air masses and fronts; tropical and extratropical cyclones.
- Precipitation-evaporation; condensation-dew, frost, fog, mist and cloud; rainfall-types and world distribution.
- World climates-classification (Koeppen and Thornthwaite), greenhouse effect, global warming and climatic changes.

Unit 5: Water (Oceans)**(Periods 8)**

- Hydrological Cycle.
- Oceans - distribution of temperature and salinity; movements of ocean water-waves, tides and currents; submarine reliefs.

Unit 6: Life on the Earth**(Periods 6)**

- Biosphere - importance of plants and other organisms; biodiversity and conservation; ecosystem and ecological balance.

Unit 7: Map work on identification of features based on the above units on the outline political map of the world.**Part B. India - Physical Environment****65 Periods****Unit 8: Introduction****(Periods 3)**

- Location-space relations and India's place in the world.

Unit 9: Physiography**(Periods 23)**

- Structure and Relief;
- Drainage systems: concept of watershed; the Himalayan and the Peninsular;
- Physiographic divisions.

Unit 10: Climate, Vegetation and Soil**(23 Periods)**

- Weather and climate — spatial and temporal distribution of temperature, pressure winds and rainfall, Indian monsoon: mechanism, onset and withdrawal, variability of rainfalls : spatial and temporal; Climatic types (Koeppen)

- Natural vegetation-forest types and distribution; wild life; conservation; biosphere reserves;
- Soils - major types (ICAR's classification) and their distribution, soil degradation and conservation.

Unit 11: Natural Hazards and Disasters: Causes, Consequences and Management (One case study to be introduced for each topic) (Periods 16)

- Floods, Clouds bursts and droughts
- Earthquakes and Tsunami
- Cyclones
- Landslides

Unit 12: Map Work of features based on above units for locating and labelling on the Outline Political map of India.

C. Practical Work (40 Periods)

Unit 1: Fundamentals of Maps (12 Periods)

- Maps -types; scales-types; construction of simple linear scale, measuring distance; finding direction and use of symbols.
- Latitude, longitude and time.
- Map projection- typology, construction and properties of projection : Conical with one standard parallel and Mercator's projection.

Unit 2: Topographic and Weather Maps (28 Periods)

- Study of topographic maps (1 : 50,000 or 1 : 25,000 Survey of India maps); contour cross section and identification of landforms-slopes, hills, valleys, waterfall, cliffs; distribution of settlements.
- Aerial Photographs: Types & Geometry-vertical aerial photographs; difference between maps & aerial photographs; photo scale determination.
- Satellite imageries, stages in remote sensing data-acquisition, platform & sensors and data products, (photographic & digital).
- Identification of physical & cultural features from aerial photographs & satellite imageries.
- Use of weather instruments: thermometer, wet and dry-bulb thermometer, barometer, wind vane, raingauge.
- Use of weather charts: describing pressure, wind and rainfall distribution.

Unit 3: Practical Record Book and Vivavoce'.

Class XII

One Theory Paper **3 Hours** **70 Marks**

A. Fundamentals of Human Geography **35 Marks**

Unit 1: Human Geography	3
Unit 2: People	5
Unit 3: Human Activities	10
Unit 4: Transport, Communication & Trade	10
Unit 5: Human settlements	5
Unit 6: Map Work	2

B. India: People and Economy **35 Marks**

Unit 7: People	5
Unit 8: Human Settlements	4
Unit 9: Resources and Development	12
Unit 10: Transport, Communication and International Trade	7
Unit 11: Geographical Perspective on selected issues and problems	4
Unit 12: Map Work	3

C. Practical Work **30 Marks**

Unit 1: Processing of Data and Thematic Mapping	15
Unit 2: Field study or Spatial Information Technology	10
Unit 3: Practical Record Book and Viva Voce	5

CLASS XII

A. Fundamentals of Human Geography **(70 Periods)** **35 Marks**

Unit 1: Human Geography: Nature and Scope **Periods 3**

Unit 2: People **Periods 15**

- Population — distribution, density and growth
- Population change-spatial patterns and structure; determinants of population change;
- Age-sex ratio; rural-urban composition;
- Human development - concept; selected indicators, international comparisons

Unit 3: Human Activities

Periods 25

- Primary activities - concept and changing trends; gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agricultural and allied activities - some examples from selected countries.
- Secondary activities-concept; manufacturing: types – household, small scale, large scale; agro based and mineral based industries; people engaged in secondary activities - some examples from selected countries.
- Tertiary activities-concept; trade, transport and communication; services; people engaged in tertiary activities - some examples from selected countries
- Quaternary activities-concept; knowledge based industries; people engaged in quaternary activities - some examples from selected countries

Unit 4: Transport, Communication and Trade

Periods 19

- Land transport - roads, railways; trans-continental railways.
- Water transport- inland waterways; major ocean routes.
- Air transport- Intercontinental air routes.
- Oil and gas pipelines.
- Satellite communication and cyber space.
- International trade-Bases and changing patterns; ports as gateways of international trade, role of WTO in International trade.

Unit 5: Human Settlements

Periods 8

- Settlement types - rural and urban; morphology of cities (case study); distribution of mega cities; problems of human settlements in developing countries.

Unit 6: Map Work on identification of features based on above units on the outline Political map of World.

Part B. India: People and Economy

70 Periods

Unit 7: People

Periods 12

- Population : distribution, density and growth; composition of population - linguistic, religious; sex, rural-urban and occupational– polulation change through time and regional variations;
- Migration: international, national-causes and consequences;
- Human development: selected indicators and regional patterns;
- Population, environment and development.

Unit 8: Human Settlements

Periods 8

- Rural settlements - types and distribution;
- Urban settlements - types, distribution and functional classification.

Unit 9: Resources and Development

Periods 28

- Land resources- general land use; agricultural land use, Geographical conditions and distribution of major crops (Wheat, Rice, Tea, Coffee, Cotton, Jute, Sugarcane and Rubber), agricultural development and problems.
- Water resources-availability and utilization-irrigation, domestic, industrial and other uses; scarcity of water and conservation methods-rain water harvesting and watershed management (one case study related with participatory watershed management to be introduced).
- Mineral and energy resources- distribution of metallic (Ironore, Copper, Bauxite, Manganese) ; non-metallic (Mica, Salt) minerals; conventional (Coal, Petroleum, Natural gas and Hydro electricity) and non-conventional energy sources (solar, wind, biogas) and conservation.
- Industries - types, factors of industrial location; distribution and changing pattern of selected industries-iron and steel, cotton textiles, sugar, petrochemicals, and knowledge based industries; impact of liberalization, privatisation and globalisation on industrial location; industrial clusters.
- Planning in India- target area planning (case study); idea of sustainable development (case study).

Unit 10: Transport, Communication and International Trade **Periods 12**

- Transport and communication-roads, railways, waterways and airways: oil and gas pipelines; national electric grids; communication networkings - radio, television, satellite and internet.
- International trade- changing pattern of India's foreign trade; sea ports and their hinterland and airports,

Unit 11: Geographical Perspective on Selected Issues and Problems (One case study to be introduced for each topic) **Periods 10**

- Environmental pollution; urban-waste disposal.
- Urbanisation, rural-urban migration; problems of slums.
- Land Degradation.

Unit 12: Map work on locating and labelling of features based on above units on outline political map of India **3 Marks**

C. Practical Work

Unit I : Processing of Data and Thematic Mapping **(Periods 20)**

- Sources of data.
- Tabulating and processing of data; calculation of averages, measures of central tendency, deviation and rank correlation;
- Representation of data- construction of diagrams: bars, circles and flowchart; thematic maps; construction of dot; choropleth and isopleth maps.
- Use of computers in data processing and mapping.

Unit II: Field Study or Spatial Information Technology **(Periods 10)**

Field visit and study: map orientation, observation and preparation of sketch; survey on any one of the local concerns; pollution, ground water changes, land use and land-use changes, poverty, energy issues, soil degradation, impact of floods and drought, catchment area of school, Market survey and Household survey (any one topic of local concern may be taken up for the study; observation and questionnaire survey may be adopted for the data collection; collected data may be tabulated and analysed with diagrams and maps).

OR

Spatial Information Technology

Introduction to GIS; hardware requirements and software modules; data formats; raster and vector data, data input, editing & topology building; data analysis; overlay & buffer.

Recommended text books:

1. Fundamentals of Physical Geography, Class XI, Published by NCERT
2. India, Physical Environment, Class XI, Published by NCERT
3. Practical Work in Geography, Class XI, Published by NCERT
4. Fundamentals of Human Geography, Class XII, Published by NCERT
5. India - People and Economy, Class XII, Published by NCERT
6. Practical Work in Geography, Class XII, Published by NCERT

Note : The above textbooks also available in Hindi medium.

24. PSYCHOLOGY (Code No. 037)

Psychology is introduced as an elective subject at the higher secondary stage of school education. As a discipline, psychology specializes in the study of experiences, behaviours and mental processes of human beings within a socio-cultural and socio- historical context. This course purports to introduce the learners to the basic ideas, principles and methods in psychology so as to enable them to understand themselves and their social world better. The emphasis is put on creating interest and exposure needed by learners to develop their own knowledge base and understanding.

The course deals with psychological knowledge and practices which are contextually rooted. It emphasizes the complexity of behavioural processes and discourages simplistic cause-effect thinking. This is pursued by encouraging critical reasoning, allowing students to appreciate the role of cultural factors in behaviour, and illustrating how biology and experience shape behaviour. The course while developing an appreciation of subjectivity, also focuses on multiplicity of worldviews.

It is suggested that the teaching - learning processes should involve students in evolving their own understanding. therefore, teaching of psychology should be based on the use of case studies, narratives, experiential exercises, analysis of common everyday experiences, etc.

The present effort at reforming and updating the syllabus is based on the feedback received from the teachers and students as well as some new educational and curricular concerns such as, the curriculum load, interdisciplinary approach, issues related to gender parity, concerns of special and marginalised groups, peace and environmental concerns, and inculcating citizenship values.

Objectives

1. To develop appreciation about human behaviour and human mind in the context of learners' immediate society and environment.
2. To develop in learners an appreciation of multidisciplinary nature of psychological knowledge and its application in various aspects of life.
3. To enable learners to become perceptive, socially aware and self -reflective.
4. To facilitate students' quest for personal growth and effectiveness, and to enable them to become responsive and responsible citizens.

Class XI (Theory)

One Theory Paper
Unitwise weightage

3 Hours

Marks : 70

Units	Marks
Foundations of Psychology	
I. Introduction to Psychology	08
II. Methods of Psychology	09
III. The Bases of Human Behaviour	08
IV. Human Development	07
V. Sensory and Perceptual Processes	08
VI. Learning	08
VII. Human Memory	08
VIII. Language and thought	07
IX. Motivation and Emotion	07
Practicals (Projects, experiments, small studies)	30

Foundations of Psychology

(90 Periods)

Unit I: Introduction to Psychology

08 Marks

(16 Periods)

The unit seeks to help understanding and appreciating psychology as a discipline, its applications and relationships with other sciences through appropriate and interesting examples and analysis of everyday experiences.

Nature of psychology; Basic concepts: Person, States of Consciousness: Sleep and Wakefulness and altered States of Consciousness, Behaviour and Experience: Similarities and variations in psychological attributes; Evolution of the discipline of psychology; Developments in psychology in India; Psychology and other disciplines; Linkages across psychological processes. Emerging perspectives: evolutionary, cultural and positive psychologies.

Unit II: Methods of Psychology

09 Marks

(20 Periods)

The objective of this unit is to familiarize with the methods of studying and understanding Qualitative method, psychological questions and issues.

Goals of psychological enquiry; Some important methods: Observation, Naturalistic, Experimental; Correlational study; Interview, Case study; Psychological tools: Tests, Questionnaires and gadgets; Qualitative Methods, Quantitative Analysis of data: Concepts and computation of the Measures of Central Tendency: Graphical Presentation of Data: Bar, Histogram, Polygon; Ethical issues in the study of psychological processes.

Unit III: The Bases of Human Behaviour 08 Marks (20 Periods)

This unit focuses on the role of biological and socio-cultural factors in the shaping of human behaviour and experience.

Evolutionary perspective on human behaviour; Biological and cultural roots; Nervous system and endocrine system: Structure and relationship of with behaviour and experience; Brain and behaviour, Role of Neurotransmitters in behaviour. Sleep and weakfulness. Genetic bases of behaviour; Culture and human behaviour: Socialization, Enculturation and Acculturation; Globalization; Diversity and pluralism in the Indian context.

Unit IV: Human Development 07 Marks (16 Periods)

This unit deals with variations in development and the developmental tasks across the life span.

Meaning of development; Factors influencing development; Contexts of development; Overview of developmental stages: Prenatal development, Infancy, Childhood, Adolescence (particularly issues of identity, health, social participation and moral development), Adulthood and Old age.

Unit V: Sensory and Perceptual Processes 8 Marks (20 Periods)

This unit aims at understanding how various sensory stimuli are received, attended to and given meaning.

Knowing the world; Nature of stimuli; Nature and functioning of sense modalities; Sensory Adaptation; Attention : Nature and determinants; Selective and sustained attention; Principles of perceptual organization; Role of perceiver , characteristics in perception; Pattern recognition; Perceptual phenomena : After images; Space Perception, Perceptual constancy, Illusions, Person perception; Socio-cultural influences on perception.

Unit VI : Learning 8 Marks (20 Periods)

This unit focuses on how human beings acquire new behaviour and how changes in behaviour take place.

Nature of learning and learning curve: Paradigms of learnings: Classical and Operant Conditioning, Observational Learning, Cognitive learning, Verbal learning, Concept learning, skill-learning; Factors facilitating learning; Transfer of learning: Types and Applications, Learning styles: Learning disabilities; Some Applications of learning principles.

Unit VII : Human Memory 8 Marks (20 Periods)

This unit deals with how information is received, stored, retrieved and lost. It will also discuss how memory can be improved.

Nature of memory; Information Processing Approach; Levels of processing; Memory systems - Sensory memory, Short-term memory, Long -term memory; Knowledge representation and organisation

in memory; Memory as a constructive process; memory and emotions; prospective memory; Nature and causes of forgetting; Enhancing memory; Brain and memory.

Unit VIII : Language and Thought **07 Marks** **(20Periods)**

This unit deals with thinking and related processes like reasoning, problem-solving, decision making and creative thinking and relationship between thought and language.

Building blocks of thinking: Thought and language: Nature and interrelationship; Stages of cognitive development: Introduction to the ideas of Piaget and Vygotsky, Development of language and language use; Reasoning: Problem-solving; Decision making; Creative thinking: Nature, process and development.

Unit IX: Motivation and Emotion **07 Marks** **(18 Periods)**

This unit focuses on why human beings behave as they do. It also deals with how people experience positive and negative events and respond to them.

Human existence and nature of motivation; Biological needs; Social and psychological motives: Achievement, Affiliation and Power, Maslow's hierarchy of needs; Emerging concepts: Competence, Self efficacy and Intrinsic Motivation; Nature of emotions; Physiological, cognitive and cultural bases of emotions; Expression of emotions; Positive emotions: Happiness, Optimism, Empathy and Gratitude; Development of positive emotions; Managing negative emotions such as anger and fear.

Practicals (Projects, experiments, small studies, etc.)30 Marks(60 Periods)

The students shall be required to undertake one project and conduct one experiments. The project would involve the use of different methods of enquiry and related skills. Practical would involve conducting experiments and undertaking small studies, exercises, related to the topics covered in the course (e.g. Human development, Learning, Memory, Motivation, Perception, Attention and Thinking).

- | | | |
|-------|--|----------|
| (i) | Practical (Experiments) file | 05 Marks |
| (ii) | Project File | 05 Marks |
| (iii) | Viva Voce (Project and experiments) | 05 Marks |
| (iv) | One experiment : (05 for conduct and 10 for reporting) | 15 Marks |

Class XII (Theory)

One Theory Paper
Unitwise weightage

Marks 70

Units	Marks
Psychology, Self and Society	
I. Intelligence and Aptitude	09
II. Self and Personality	10
III. Human Strengths and meeting the Life Challenges	07
IV. Psychological Disorders	10
V. Therapeutic Approaches and counselling.	07
VI. Attitude and Social Cognition	08
VII. Social Influence and Group Processes	07
VIII. Environmental and Social concerns	06
IX. Applied Psychology	06
Practicals (Psychological testing, Case Profile etc.)	30

Psychology, Self and Society

Unit I : Intelligence and Aptitude **09 Marks** **(20 Periods)**

The unit aims at studying how people differ with respect to intelligence and aptitude.

Individual differences in intelligence: Theories of Intelligence; Culture and Intelligence; Emotional intelligence; Aptitude: Nature and types: Assessment of psychological attributes: dynamic assessment.

Unit II : Self and Personality **10 Marks** **(24 Periods)**

This unit focuses on the study of self and personality in the context of different approaches in an effort to appraise the person. The assessment of personality will also be discussed.

Aspects of self: self concept: Self-esteem and Self-regulation; Culture and self; Personality: Concept; Approaches to Personality: Type and Trait, Psychodynamic, Humanistic, Behavioural and Cultural; Assessment of Personality: Self-report Measures, Behavioural Analysis, and Projective Measures.

Unit III : Human Strengths and Meeting Life Challenges **07 Marks** **(14 Periods)**

This unit deals with the nature of stress and how responses to stress depend on an individual's appraisal of stressors. Strategies to cope with stress will also be dealt with.

Life challenges and adjustment; Concept of adaptation; Human strengths and virtues: Nature, types and effects on psychological functioning; Coping with stress; Concepts of health and well-being through life style changes.

Unit IV: Psychological Disorders **10 Marks** **(24 Periods)**

This unit discusses the concepts of normality and abnormality and the major psychological disorders.

Concepts of abnormality and psychological disorder, Causal factors associated with abnormal behaviour, Classification of disorders, Major psychological disorders: Anxiety, Somato-form, Dissociative, Mood, Schizophrenic, Developmental and Behavioural, Substance Related.

Unit V : Therapeutic Approaches and counselling **07 Marks** **(20 Periods)**

This unit discusses the goals, techniques and effectiveness of different approaches to treat psychological disorders.

Nature and process of therapy; Nature of therapeutic relationship; Types of therapies: Psycho-dynamic, Humanistic, Cognitive, Behaviour; Alternative therapies: Yoga, Meditation; Zen; Rehabilitation of mentally ill people. Counselling Prevention of mental disorders.

Unit VI : Attitude and Social Cognition **08 Marks** **(20 Periods)**

This unit focuses on the formation and change of attitudes, cultural influences on attributional tendencies and conditions influencing pro-social behaviour.

Explaining behaviour through attributions; Social cognition; Schemas and stereotypes; Impression formation; Nature and components of attitudes; Attitude formation and change; Behaviour in the presence of others; Pro-social Behaviour; Prejudice and discrimination; Strategies for handling prejudice.

Unit VII : Social Influence and Group Processes **07 Marks** **(22 Periods)**

The unit deals with the concept of group, its functions and the dynamics of social influence process like conformity, obedience and compliance. Different conflict resolution strategies will also be discussed. Illustrations from Indian society context will be used.

Influence Processess: Nature of Conformity, Obedience, and Compliance; Cooperation and Competition; Groups: Nature, formation and types; Influences of group on individual behaviour; Social identity; Inter-Group Conflict; Conflict Resolution Strategies.

Unit VIII: Environmental and Social Concerns **06 Marks** **(18 Periods)**

This unit focuses on the application of psychological understanding to some important social issues.

Human- environment relationship; Environmental effects on human behaviour. Noise, pollution, crowding, natural disasters, social issue: Aggression and Violence; Social Inequality and Poverty; Media and human values; Promoting pro-environmental behaviour, Human rights and citizenship; Peace.

Unit IX: Applied Psychology. 06 Marks (18 Periods)

This unit introduces some of the important areas of application of psychology.

Application of psychology to following areas :

1. Sports
2. Education
3. Communication
4. Organisation

Psychological testing Practicals 30 Marks (60 Periods)

The students shall be required to prepare one case profile and conduct 2 practicals related to the topics covered in the course. The case profile will include developmental history of the subject, using both qualitative (observation, interview) and quantitative (Psychological testing) approaches. Practicals would involve using standardised psychological assessment devices in different domains (e.g. intelligence, personality, aptitude, adjustment, attitude, self-concept, and anxiety).

Distribution of Marks:

- | | |
|---|----------|
| (i) Practical File | 05 Marks |
| (ii) Case Profile | 05 Marks |
| (iii) Viva Voice (Case profile and practical) | 05 Marks |
| (iii) Two practicals (5 for accurate conduct and 10 for reporting). | 15 Marks |

Recommended text books:

1. Psychology, Class XI, Published by NCERT
2. Psychology, Class XII, Published by NCERT
3. Supplementary Reading Material in Psychology for Classes XII and X (available on the CBSE website www.cbse.nic.in).

Note : The above text books and reading material are also available in Hindi medium.

25. SOCIOLOGY (Code No 039)

Rationale

Sociology is introduced as an elective subject at the senior secondary stage. The syllabus is designed to help learners to reflect on what they hear and see in the course of everyday life and develop a constructive attitude towards society in change; to equip a learner with concepts and theoretical skills for the purpose. The curriculum of Sociology at this stage should enable the learner to understand dynamics of human behaviour in all its complexities and manifestations. The learners of today need answers and explanations to satisfy the questions that arise in their minds while trying to understand social world. Therefore, there is a need to develop an analytical approach towards the social structure so that they can meaningfully participate in the process of social change. There is scope in the syllabus not only for interactive learning, based on exercises and project work but also for teachers and students to jointly innovate new ways of learning.

- Sociology studies society. The child's familiarity with the society in which she /he lives in makes the study of sociology a double edged experience. At one level sociology studies institutions such as family and kinship, class, caste and tribe religion and region- contexts with which children are familiar of, even if differentially. For India is a society which is varied both horizontally and vertically. The effort in the books will be to grapple overtly with this both as a source of strength and as a site for interrogation.
- Significantly the intellectual legacy of sociology equips the discipline with a plural perspective that overtly engages with the need for defamiliarization, to unlearn and question the given. This interrogative and critical character of sociology also makes it possible to understand both other cultures as well as relearn about one's own culture.
- This plural perspective makes for an inbuilt richness and openness that not too many other disciplines in practice share. From its very inception sociology has had mutually enriching and contesting traditions of an interpretative method that openly takes into account 'subjectivity' and causal explanations that pay due importance to establishing causal correspondences with considerable sophistication. Not surprisingly its field work tradition also entails large scale survey methods as well as a rich ethnographic tradition. Indeed Indian sociology, in particular has bridged this distinction between what has often been seen as distinct approaches of sociology and social anthropology. The syllabus provides ample opportunity to make the child familiar with the excitement of field work as well as its theoretical significance for the very discipline of sociology.
- The plural legacy of sociology also enables a bird's eye view and a worm's eye view of the society the child lives in. This is particularly true today when the local is inextricably defined and shaped by macro global processes.

- The syllabus proceeds with the assumption that gender as an organizing principle of society cannot be treated as an add on topic but is fundamental to the manner that all chapters shall be dealt with.
- The chapters shall seek for a child centric approach that makes it possible to connect the lived reality of children with social structures and social processes that sociology studies.
- A conscious effort will be made to build into the chapters a scope for exploration of society that makes learning a process of discovery. A way towards this is to deal with sociological concepts not as givens but a product of societal actions humanly constructed and therefore open to questioning.

Objectives

1. To enable learners to relate classroom teaching to their outside environment.
2. To introduce them to the basic concepts of sociology that would enable them to observe and interpret social life.
3. To be aware of the complexity of social processes.
4. To appreciate diversity in society in India and the world at large.
5. To build the capacity of students to understand and analyze the changes in contemporary Indian society.

Class XI

3 Hours

One Paper Theory
Unitwise Weightage

Marks: 80

Units	Marks
A. Introducing Sociology	34
1. Society, Sociology and relationship with other social sciences	6
2. Basic Concepts	8
3. Social Institutions	10
4. Culture and Society	10
5. Practical Sociology : Methods & Techniques: Evaluated through Practical	
B. Understanding Society	46
6. Structure, Process and Stratification	10
7. Social Change	10
8. Environment and Society	10
9. Western Social Thinkers	8
10. Indian Sociologists	8

Class XI

Practical Examination

Max. Marks 20

Time allotted : 3hrs

Unitwise Weightage

A. Project (undertaken during the academic year at school level)	07 marks
i. Statement of the purpose	: 2 marks
ii. Methodology / Technique	: 2 marks
iii. Conclusion	: 3 marks
B. Viva - based on the project work	05 marks
C. Research design	08 marks
i. Overall format	: 1 mark
ii. Research Question/Hypothesis	: 1 mark
iii. Choice of technique	: 2 marks
iv. Detailed procedure for implementation of technique	: 2 marks
v. Limitations of the above technique	: 2 marks

A. INTRODUCING SOCIOLOGY **Marks**

Unit 1: Society & Sociology and Relationship with other social sciences **(Periods 22)**

- Introducing Society: Individuals and collectivities. Plural Perspectives
- Introducing Sociology: Emergence. Nature & Scope. Relationship to other disciplines

Unit 2: Basic Concepts **(Periods 22)**

- Social Groups
- Status and Role
- Social Stratification
- Social Control

Unit 3: Social Institutions **(Periods 24)**

- Family and Kinship
- Political and Economic Institutions

- Religion as a Social Institution
- Education as a Social Institution

Unit 4: Culture And Society (Periods 20)

- Culture. Values and Norms: Shared, Plural, Contested
- Socialization: Conformity, Conflict and the Shaping of Personality

Unit 5: Practical Sociology: Methods & Techniques (Periods 22)

- Tools and Techniques: Observation, Survey, Interview
- The Significance of Field Work in Sociology

B. UNDERSTANDING SOCIETY

Unit 6: Structure, Process and Stratification (Periods 22)

- Social Structure
- Social Processes: Cooperation, Competition, Conflict
- Social Stratification: Class, Caste, Race, Gender.

Unit 7: Social Change (Periods 22)

- Social Change: Types and Dimensions; Causes and Consequences.
- Social Order: Domination, Authority & Law; Contestation, Crime & Violence
- Village, Town & City: Changes in Rural & Urban Society

Unit 8: Environment And Society (Periods 18)

- Ecology and Society
- Environmental Crises and Social Responses

Unit 9: Western Social Thinkers (Periods 24)

- Karl Marx on Class Conflict
- Emile Durkheim on Division of Labour
- Max Weber on Bureaucracy

Unit 10: Indian Sociologists**(Periods 24)**

- G.S. Ghurye on Race and Caste 10 Marks
- D.P. Mukerji on Tradition and Change
- A.R. Desai on the State
- M.N. Srinivas on the Village

Class XII**One Paper Theory****3 Hours****Marks 80****Unitwise Weightage**

Units	2008
Indian Society	32
1. Introducing Indian Society	Non evaluative
2. Demographic Structure & Indian Society	6
3. Social Institutions-Continuity and change	6
4. Market as a Social Institution	6
5. Pattern of Social Inequality and Exclusion	6
6. Challenges of Cultural Diversity	8
7. Suggestions for Project Work	Non evaluative
Change and Development in Indian Society	48
8. Structural Change	6
9. Cultural Change	6
10. The Story of Democracy	6
11. Change and Development in Rural Society	6
12. Change and Development in Industrial Society	6
13. Globalization and Social Change	6
14. Mass Media and Communications	6
15. Social Movements	6

Practical Examination

Max. Marks 20

Time allotted : 3hrs

Unitwise Weightage

A. Project (undertaken during the academic year at school level)	07 marks
i. Statement of the purpose :	2 marks
ii. Methodology /Technique :	2 marks
iii. Conclusion :	3 marks
B. Viva - based on the project work	05 marks
C. Research design	08 marks
i. Overall format :	1 mark
i Research Question/Hypothesis :	1 mark
iii. Choice of technique :	2 mark
iv. Detailed procedure for implementation of technique :	2 mark
v. Limitations of the above technique :	2 mark

B & C to be administered on the day of the external examination

INDIAN SOCIETY

Marks 58

Unit 1: Introducing Indian Society

(Periods 10)

- Colonialism, Nationalism, Class and Community

Unit 2: Demographic Structure And Indian Society

(Periods 10)

- Rural-Urban Linkages and Divisions

Unit 3: Social Institutions: Continuity & Change

(Periods 14)

- Family and Kinship
- The Caste System

Unit 4: Market As A Social Institution

(Periods 10)

- Market as a Social Institution

Unit 5: Pattern of Social Inequality & Exclusion

(Periods 24)

- Caste Prejudice, Scheduled Castes and Other Backward Classes

- Marginalization of Tribal Communities
- The Struggle for Women's Equality
- The Protection of Religious Minorities
- Caring for the Differently Abled

Unit 6: The Challenges Of Cultural Diversity (Periods 12)

- Problems of Communalism, Regionalism, Casteism & Patriarchy
- Role of the State in a Plural and Unequal Society
- What We Share

Unit 7: Suggestions For Project Work (Periods 18)

B. CHANGE AND DEVELOPMENT IN INDIA

Unit 8: Structural Change (Periods 10)

- Colonialism, Industrialization, Urbanization.

Unit 9: Cultural Change (Periods 12)

- Modernization, Westernization, Sanskritisation, Secularization .
- Social Reform Movements & Laws

Unit 10 : The Story Of Democracy (Periods 22)

- The Constitution as an instrument of Social Change
- Parties, Pressure Groups and Democratic Politics
- Panchayati Raj and the Challenges of Social Transformation

Unit 11: Change And Development In Rural Society (Periods 10)

- Land Reforms, Green Revolution and Agrarian Society

Unit 12: Change And Development In Industrial Society

(Periods 14)

- From Planned Industrialization to Liberalization
- Changes in the Class Structure

Unit 13: Globalisation And Social Change

(Periods 12)

Unit 14: Mass Media And Communication Process

(Periods 12)

Unit 15: Social Movements

(Periods 22)

- Class-Based Movements: Workers, Peasants.
- Caste-Based Movements: Dalit Movement, Backward Castes, Trends in Upper Caste Responses.
- Women's Movements in Independent India.
- Tribal Movements.
- Environmental Movements.

Recommended textbooks

1. Introducing Sociology, Class XI, Published by NCERT
2. Understanding Society, Class XI, Published by NCERT
3. Indian Society, Class XII, Published by NCERT
4. Social Change and Development in India, Class XII, published by NCERT

26. Philosophy (Code No. 040)

OBJECTIVES

Philosophy, a theoretical enterprise with practical applications, aims at understanding the nature and meaning of life and Reality. It is both a view of reality and a way of life. It is considered to be the mother of all branches of knowledge. The nature of Philosophy is that in it no answer is left unquestioned. It attempts to understand and explain the fundamental axioms and presuppositions which are taken for granted by all branches of knowledge. The +2 syllabus is designed to give the students a glimpse of the nature of problems and the way they are dealt with in its various branches- Logic, Ethics, Classical Indian Philosophy and Western Philosophy.

CLASS XI (THEORY)

One Theory Paper

Time: 3 Hours

100 Marks

Unitwise Weightage

Units	Marks
Scientific Method	
1. Methods of Natural and Social Sciences	10
2. Observation and Experiment	10
3. Science and Hypothesis	10
4. Mill's Methods of Experimental Inquiry	10
5. Nyaya Theory of Knowledge (General Survey)	10
Logic	
6. The nature and subject matter of logic	06
7. Terms and Propositions	15
Relation between Propositions	
8. Categorical Syllogism	10
9. Elements of Symbolic Logic	06
10. Buddhist Formal Logic	13

Unit 1 :	Methods of Natural and Social Sciences Value of Science. Nature and aim of Scientific Methods: Difference between Scientific induction, and Induction by simple enumeration. Difference between methods of Natural Sciences and Social Sciences.	20 Pds.
Unit 2 :	Observation and Experiment Their Differences; fallacies of observation.	20 Pds.
Unit 3 :	Science and Hypothesis The place of hypothesis in scientific method. Formulation of relevant hypothesis. Formal conditions of valid hypothesis. Hypothesis and crucial experiments.	25 Pds.
Unit 4 :	Mill's methods of Experimental Inquiry The method of agreement; The method of difference; The joint method of agreement and difference; The method of concomitant variation; The method of residue	25 Pds.
Unit 5 :	Nyaya Theory of Knowledge General Survey – Prama, Pramana, Pramanya, Pratyaksa, Anumana, Upamana, Sabda LOGIC	30 Pds.
Unit 6:	The nature and scope of logic What is Logic? Use and application of Logic. Difference between Truth and Validity	14 Pds.
Unit 7 :	Terms and Propositions Definition of Term; Denotation and Connotation of Terms. Definition of Proposition and traditional classification of Propositions. Distribution of Terms. Relation between Propositions Traditional Square of Propositions	30 Pds 12 Pds.
Unit 8:	Categorical Syllogism Its definition: Rules of valid syllogism and Fallacies.	24 Pds.
Unit 9 :	Elements of Symbolic Logic Value of using symbols in Logic Basic Truth-tables.	14 Pds.

Unit 10 : Buddhist Formal Logic : Theory of Anuman**26 Pds.****Suggested reference:****A. English**

- | | |
|---------------------------------|------------------------------|
| 1. Bhola Nath Roy | Text-book of Inductive Logic |
| 2. Bhola Nath Roy | Text-book of Deductive Logic |
| 3. I.M. Copi | Introduction to Logic. |
| 4. S.C. Chatterjee | Nyaya Theory of Knowledge |
| 5. C. D. Bijalrav | Indian Theory of Knowledge |
| 6. S. R. Bhatt and Anu Mehrotra | Buddhist Epistemology |

B. हिन्दी

- | | |
|-----------------------|----------------------|
| 1. भोलानाथ राय | तर्कशास्त्र – आगमन |
| 2. भोलानाथ राय | तर्कशास्त्र – निगमन |
| 3. आई. एम. कोपी | तर्कशास्त्र से परिचय |
| 4. बद्रीनाथ सिंह | भारतीय प्रमाणमीमांसा |
| 5. ब्रह्ममित्र अवस्थी | भारतीय न्यायशास्त्र |
| 6. चक्रधर बिजलराव | भारतीय न्यायशास्त्र |

CLASS XII (THEORY)**One Theory Paper****Time: 3 Hours****100 Marks****Unitwise Weightage**

Units	Marks
A. INDIAN PHILOSOPHY	50
1. Nature and Schools of Indian Philosophy	10
2. Philosophy of the Bhagavad Gita	10
3. Buddhism, Jainism	10
4. Nyaya-Vaisesika and Samkhya- Yoga	10
5. Advaita Vedanta	10
B. WESTERN PHILOSOPHY	50
6. Knowledge and truth	10
7. The causal Principle.	10
8. Nature of Reality	10
9. Realism and Idealism	10

C. Applied Philosophy

10. Environmental Ethics, Professional Ethics and Philosophy of Education

10

A. INDIAN PHILOSOPHY -

- Unit 1:** **Nature and Schools of Indian Philosophy:** Some basic issues
Rta, Karma, Four Purusarthas : Dharma, Artha, Kama and Moksa 24 Pds,
- Unit2:** **Philosophy of the Bhagavad Gita:** Karma Yoga (Anasakta Karma), Svadharama, Lokasamgraha 24 Pds.
- Unit 3:** **Buddhism, Jainism** 24 Pds.
Four noble truths and eight-fold path; Theory of dependent origination. Anekantavada and syadvada.
- Unit 4:** **Nyaya - Vaisesika and Samkhya – Yoga** 24 Pds
(1) Nyaya theory of Pramanas, (2) Vaisesika Theory of Padarthas ‘, (3) Samkhya Theory of Three Gunas, (4) Yoga- The Eight-fold Practice.
- Unit 5:** **Advaita Vedanta** 24 Pds.
The nature of Atman, Brahman and the world.
- B. WESTERN PHILOSOPHY**
- Unit 6:** Knowledge and truth
Rationalism, Empiricism and Kant’s Critical Philosophy
- Unit 7:** **The Causal Principle** 24 Pds.
Nature of Cause
Aristotle’s theory of four-fold causation cause-effect relationship: entailment, regularity and succession. Theories of causation.
- Unit 8:** **Nature of Reality** 24 Pds.
Proofs for the existence of God
Ontological, Teleological and Cosmological arguments.
- Unit 9:** **Realism and Idealism** 24 Pds.
Mind-Body Problem
- C. Applied Philosophy**
- Unit 10:** **Environmental Ethics** 24 Pds.
(a) Study of Physical, Mental and Spiritual Environments
(b) Professional Ethics.
(c) Philosophy of Education

Suggested References:

A. English

1. John Hospers Introduction to Philosophical Analysis
2. Will Durant Story of Philosophy
3. Datta & Chatterjee Introduction to Indian Philosophy
4. M. Hiriyanna Essentials of Indian Philosophy
5. William Lillie An Introduction to Ethics
6. S. R. Bhatt & Anu Mehotra Buddhist Epistemology
7. S. R. Bhatt Applied Philosophy, Value Theory and Business Ethics

B. हिन्दी

1. चटर्जी एवं दत्ता भारतीय तर्कशास्त्र से परिचय
2. चक्रधर शर्मा भारतीय तर्कशास्त्र का समीक्षात्मक सर्वेक्षण
3. ब्रह्ममित्र अवस्थी भारतीय न्यायशास्त्र, इन्द्र प्रकाशन, दिल्ली
4. शशि कुमार वैक्षणिक दर्शन में पदार्थ-निरूपण प्रकाशन विभाग, दिल्ली विश्व विद्यालय, दिल्ली, 1992
5. जान हांस्पर्स हिन्दी अनुवाद
6. शशीप्रभा कुमार भारतीय संस्कृति: विविध आयाम विधानिधि प्रकाशन, दिल्ली

27. CREATIVE WRITING AND TRANSLATION STUDIES

Code No. 069

Aims and Objectives of the Course

- To enable the learners to understand literature as a creative act and understand the creativity involved in it.
- To enable them to appreciate the form of the creative work, the writer's purpose, its meaning, the attitudes and moods, cultural nuances and its universal appeal.
- To enable them to understand the meaning that is not directly expressed and the multiplicity of meanings that may be understood from the text.
- To enable them to generally appreciate literature and to respond to a text both intellectually and emotionally.
- To acquaint them with the different literary practices, genres, styles, figures of speech and techniques of writing.
- To enable them to write creatively guided by the principles of different genres of writing in both fictional and non-fictional prose, as well as poetry.
- To make them aware that for translation, they need proficiency in both the languages.
- To enable them to learn and use the principles underlying translation from one language into another.
- To equip them to translate simple texts from one language into another while retaining the flavour of the original text.

The Whole Approach to Creative Writing and Translation Studies

- Ideally the teacher herself/himself should show sensitivity towards different forms of literature and highlight the creative dimensions of the text.
- An integrated skill approach is recommended to enable the learners to listen, read and respond both orally and in the written form so that the literary experience becomes a complete one.
- The teacher is expected to perceive the learners as individuals, thus making room for multiple meanings and connotations, depending on their own perceptions and previous experiences.
- Though literature has creative principles, established forms, styles, even imagery for different themes and genres 'out-of-the-box' thinking should also be encouraged.
- Both group and individual activities are advisable to foster discussion, exposition, expression and contemplation.

Acquisition of Language Skills

Approach to Reading

- Activities that enable the learner to draw upon his own experience to understand the meaning of the literary text.
- Activities that promote the higher order reading skills of interpretative, evaluative and creative comprehension should be employed.
- Method of reading should lead to the development of vocabulary by perceiving their differential levels of meaning.
- Development of the ability to deconstruct a text to read between and beyond the lines should be encouraged.

Specific Objectives of Reading

To develop in the learners the ability to :

- use dictionaries, thesaurus and reference materials both actual and virtual
- read differently i.e. skimming, scanning and close reading.
- infer and understand the writer's attitude, bias, cultural and ideological leanings.
- comprehend the difference between what is said and what is implied.
- differentiate the language of persuasion, exposition and expression of personal feelings and ideas.
- distinguish fact from opinion.
- grasp the cultural context of the work.
- identify different figures of speech and appreciate the writer's purpose in using them
- develop a personal response to the given text
- appreciate the special features of the language used in literary text
- identify the elements of style such as humour, pathos, satire and irony in the text
- explore and evaluate features of character, plot, setting etc.
- appreciate the oral, mobile and visual elements of drama.

Listening and Speaking (Aural and Oral)

Specific Objectives of Aural and Oral Skills involved in the conduct of the course are to develop the ability to :

- listen to different types of texts and distinguish their types/genres, the language used, the purpose for which it is written and interpret meaning.
- listen with comprehension speeches, lectures and talks and participate actively in the ensuing discussion.

- listen to reports and other expository texts and extract relevant information: listening for gist or detail.
- listen to poetry for understanding and enjoyment.
- take part in role-plays and enact different characters in drama.
- develop the art of public speaking.
- read poetry aloud with expression.

Approach to Writing Skills

Classroom approach should involve activities that enable learners to develop the skills using a process approach:

The Writing Skills that the course aims to develop are the advanced writing skills. However, during the course of the activities the learners would also learn the sub-skills of writing and get an insight into the process of writing.

The course aims to develop advanced writing skills involving the sub-skills of writing which will

- lead to a logical conclusion of a reading activity.
- integrate listening, speaking and reading as precursors to the actual act of writing.
- avoid linguistic or stylistic errors in writing.
- use appropriate language, style, format, metre (in poetry), sentence-length and length of the piece or embellishments in a particular genre.
- write in an original manner while adhering to the basic principles of a genre.

Further, the objective is to train the learners specifically in the following kinds of writing :

- responses to the questions based on the text.
- different kinds of text using appropriate vocabulary, language, length and style.
- **expository texts:** reports, descriptions of people, places and processes.
- **narrative texts:** reports, autobiography, memoir, stories.
- **reflective texts:** using ideas and themes expressing one's view and using a persuasive writing style.
- travelogues and features featuring appropriate illustrations and highlights.
- essays on different themes concerning their lives.
- simple stories in a narrative style.
- simple dialogues on a given situation.
- a book or a film review.
- short speeches in an impressive or persuasive style.
- a diary or a journal.

- full-fledged composition from outlines
- poems using appropriate words and keeping in mind the rhyme and metre.
- short poems within the frame of a given genre of poetry.

Participation in an interactive class-room approach is advised. Activities should be designed to promote

- i) understanding the employment of different kinds of writing skills, and
- ii) appreciation and effective composition of different kinds of writing.

CREATIVE WRITING AND TRANSLATION STUDIES

Code No : 069

Class XI

3 hours

One paper

100 Marks

Section-wise Weightage of the Paper

Section	Areas of Learning	Marks
A.	Reading Comprehension (Three unseen passages, prose and poetry)	20
B.	i) Creative Writing Skills	20
	ii) Translation	20
C.	Textual	20
D	Portfolio Assessment (CCE - Internal)	20
Total :		100

SECTION A

READING COMPREHENSION

20 Marks

40 period

Three unseen passages (including poems) with a variety of questions on different levels of comprehension (literal, interpretative and critical) including marks for vocabulary such as inferring and word formation. The total range of the three passages including the poem or a stanza, would be about 1050-1100 words.

- Non-fictional prose**, an excerpt 250-300 words in length (for extracting information, inferring and interpreting, evaluating and word attack) - 07 marks
- Fictional prose**, a very short story or an excerpt, 250-300 words in length (for interpretation, understanding character, making personal responses and vocabulary) - 07 marks
- A short poem or a few stanzas** (for understanding central idea, appreciation and personal response) - 06 marks

The **passages or poems** could be any one of the following types:

- Autobiographies or reflective writing like essays or articles.
- Excerpts from narrative and fictional writing like stories, novels and plays.
- A short poem like a sonnet or a lyric, or a stanza from a ballad or a longer lyrical poem.

SECTION B

A CREATIVE WRITING SKILLS **20 marks**
40 periods

Four writing tasks as indicated below:

1. Develop a **composition** of personal writing such as a diary entry, memoir or an autobiography **(200 words)** 6 marks
2. Develop a **feature or a review** such as a travelogue, book or film review based on verbal or a visual input **(200 words)** 6 marks
3. Developing an **original poem** such as a sonnet or a lyric or free verse based on a given idea or theme, visual input, an incident or event in life. 8 marks

B TRANSLATION **20 Marks**
40 periods

1. **Guided translation** i.e. a piece of translated text for completion based on the original text (prose or poetry) 04 marks
2. **Open translation** of a prose piece **(100 words)** 08 marks
3. **Open translation** of a short poem or a stanza 08 marks

SECTION C

READER **20 Marks**
60 periods

1. **Four** questions of **three marks** each to be answered in **60-80 words** based on the understanding of the text. 12 marks
2. **One** out of the **two open ended** essay topics to be answered in **200 words.** 08 marks

SECTION D

PORTFOLIO ASSESSMENT **20 Marks**
50 periods

The Reader has inbuilt suggestions and activities for the students' **Portfolio**.

20 marks have been allotted for the **Portfolio** wherein the following would be assessed:

1. Ideas and their sequencing
2. Applying the basic principles of the particular genre
3. Use of correct and effective language
4. Use of appropriate style
5. Use of techniques and figures of speech.

Note : The Portfolio will consist of a compilation of all written submissions over the duration of the course. A minimum of 15 written assignments each of creative writing and translation would need to be submitted. The submission would include both the original and improved versions of assigned tasks reflective of gradual improvement.

The Portfolio will be evaluated according to the following criteria :

1. Regularity in submission of both class and home written assignments.
2. Quality of tasks with emphasis on creative and comprehensive application.
3. Average grades of all Creative Writing and Translation written tasks.
4. Oral Communication Skills and classroom transaction.

Conversation Skills will be tested as part of '**Continuous Assessment**'. The students can be assessed for making relevant responses to the text, making a point of view and defending their point of view. Students will also be assessed for their ability to read aloud portions from stories, poems or plays. Dramatization would be another aspect which would be used for exercising their spoken skills.

NOTE : **The Portfolio can be monitored and moderated at any time by an expert nominated by the Board.**

Recommended Books :

- Reader :**
1. **Creative Writing & Translation Studies for Class XI published by CBSE.**
 2. **Reader published by NCERT.**

CREATIVE WRITING AND TRANSLATION STUDIES

Code No. : 069

Class XII

3 hours

One paper

100 Marks

Section-wise Weightage of the Paper

Section	Areas of Learning	Marks
A.	Reading Comprehension (Three unseen passages, prose and poetry)	20
B. i)	Creative Writing Skills	20
ii)	Translation	20
C.	Textual	20
D	Portfolio Assessment (CCE - Internal)	20
	Total :	100

SECTION A

READING COMPREHENSION

20 Marks

40 periods

Three unseen passages (including poems) with a variety of questions on different levels of comprehension (literal, interpretative and critical) including marks for vocabulary such as inferring and word formation. The total range of the three passages including the poem or a stanza, would be about **1050-1100 words**.

- Non-fictional prose**, an excerpt **400-450 words** in length (for extracting information, inferring and interpreting, evaluating and word attack) 07 marks
- Fictional prose**, a very short story or an excerpt, **300-350 words** in length (for interpretation, understanding character, making personal responses, and vocabulary) 07 marks
- A short poem** or a few stanzas (for understanding central idea, appreciation and personal response) 06 marks

The **passages or poems** could be any one of the following types:

- Excerpts from expository or narrative writing like descriptions, reports, biographies, memoirs or autobiographies or reflective writing like essays or articles.
- Excerpts from narrative and fictional writing like stories, novels and plays.
- A short poem like a sonnet or a lyric, or a stanza from a ballad or a longer lyrical poem.

SECTION B

i) CREATIVE WRITING SKILLS

20 marks
40 periods

Four writing tasks as indicated below:

4. Develop a **composition** of personal writing such as a diary entry, memoir or an autobiography (**200 words**) 6 marks
5. Develop a **feature or a review** such as a travelogue, book or film review based on verbal or a visual input (**200 words**) 6 marks
6. Developing an **original piece** of writing based on a given idea or theme, visual input, an incident or event in life. 8 marks

ii) TRANSLATION

20 Marks
40 periods

7. **Guided translation** i.e. a piece of translated text for completion based on the original text (**prose or poetry**) 04 marks
8. **Open translation** of a prose piece (**100 words**) 08 marks
9. **Open translation** of a short poem or a stanza 08 marks

SECTION C

READER

20 Marks
60 periods

10. **Four** questions out of five of three marks each to be answered in **60-80 words** based on the understanding of the text. 12 marks
11. **One** out of the **two open ended** essay topics to be answered in **200 words**. 08 marks

SECTION D

Portfolio Assessment

20 Marks
40 periods

The Reader has inbuilt suggestions and activities for the students' Portfolio.

20 marks have been allotted for the portfolio wherein the following would be assessed:

1. Ideas and their sequencing
2. Applying the basic principles of the particular genre
3. Use of correct and effective language
5. Use of appropriate style
6. Use of techniques and figures of speech.

Note : The Portfolio will consist of a compilation of all written submission over the duration of the course. A minimum of 15 written assignments each of creative writing and translation would need to be submitted. The submission would include both the original and improved versions of assigned tasks reflective of gradual improvement.

The Portfolio will be evaluated according to the following criteria :

1. Regularity in submission of both class and home written assignments.
2. Quality of tasks with emphasis on creative and comprehensive application.
3. Average grades of all Creative Writing and Translation written tasks.
4. Oral Communication Skills and classroom transaction.

Conversation Skills will be tested as part of '**Continuous Assessment**'. The students can be assessed for making relevant responses to the text, making a point of view and defending their point of view. Students will also be assessed for their ability to read aloud portions from stories, poems or plays. Dramatization would be another aspect which would be used for exercising their spoken skills.

NOTE : The Portfolio can be monitored and moderated at any time by an expert nominated by the Board.

Recommended Books :

Reader : Creative Writing and Translation Studies for Class XII published by CBSE.

28. PHYSICAL EDUCATION

(Code No.048)

It covers the following:

I. Eligibility conditions for opting Physical Education as an elective subject II. Conditions for granting affiliation to the schools for offering Physical Education as an elective subject III. Theory syllabus for class XI (Part A & B) IV. Theory syllabus for class XII (Part A & B). V. Part C - Practical - Distribution of marks for the practical syllabus.

I. ELIGIBILITY CONDITIONS FOR OPTING PHYSICAL EDUCATION

The following category of students shall be permitted to opt the Physical Education:

- (i) Those granted permission to join the course should be medically fit to follow the physical education curriculum, theory and practical, prescribed by the Board.
- (ii) Those who have represented the school in the Inter School Sports & Games Competitions in any Game/Sport.
- (iii) The student should undergo the prescribed physical fitness test and secure a minimum of 40% score.

II. CONDITIONS FOR GRANTING AFFILIATION TO SCHOOLS FOR OFFERING PHYSICAL EDUCATION AS AN ELECTIVE SUBJECT.

Only those schools satisfying the following conditions will be permitted to offer physical education as a course of study at +2 stage as an elective subject:

- (i) The school should have adequate open space to accommodate at least 200 M track and play fields for minimum three games/sports.
- (ii) The teacher handling the elective programme of physical education should hold a Master Degree in Physical Education.
- (iii) The school should provide adequate funds for physical education and health education for purchase of equipments, books on physical education and also for the maintenance of sports facilities.

III. PHYSICAL EDUCATION

Class XI – Theory

Max.Marks 70

PART – A

UNIT I : CONCEPT OF PHYSICAL EDUCATION

- 1.1 Meaning and Definition of Physical Education, Its Aim and Objectives
- 1.2 Need and importance of Physical Education
- 1.3 Misconceptions about Physical Education & its Relevance in Inter Disciplinary Context
- 1.4 Philosophies of Physical Education - Idealism; Naturalism; Pragmatism and Humanism
- 1.5 Fundamental concepts of Biomechanics in Physical Education and Sports - Laws of Motion, Force, Friction and Projectiles

UNIT 2 : CAREER ASPECTS IN PHYSICAL EDUCATION

- 2.1 Physical Education as a Profession
- 2.2 Professional Ethics
- 2.3 Physical Education and Career Options
- 2.4 Avenues for Career Preparation
- 2.5 Self Assessment for Career Choices

UNIT 3 : HEALTH CONCEPTS OF PHYSICAL EDUCATION

- 3.1 Role of Physical Education Programme on Individual & Family
- 3.2 Community Health Programme
- 3.3 Effects of Alcohol, Tobacco and Drugs on Sports Performance
- 3.4 Life Style Management and Sports - Obesity, Hypertension and Stress

UNIT 4 : OLYMPIC MOVEMENT

- 4.1 Ancient Olympics (Before 1896)
- 4.2 Modern Olympics (After 1896)
- 4.3 Olympic Ideals and objectives

- 4.4 Values through Olympics Movement - Friendship, Solidarity, Fair Play and Free of Discrimination.
- 4.5 Olympic Symbols

UNIT 5 : SOCIOLOGICAL ASPECTS OF PHYSICAL EDUCATION

- 5.1 Meaning of Sociology
- 5.2 Concept of Sports Sociology and its Importance
- 5.3 Games & Sports as Man's Cultural Heritage
- 5.4 Socialization in Sports at Home, School & Community
- 5.5 Leadership through Physical Education Programmes

UNIT 6 : MEASUREMENTS IN SPORTS

- 6.1 Meaning and its Importance in Physical Education and Sports
- 6.2 Cross Weber Test (Contents & Administration)
- 6.3 Calculation of BMI
- 6.4 Calculation of Waist-Hip-Ratio
- 6.5 Rock Fort One mile Test
- 6.6 AAPHER Physical Fitness Test (Content & Administration)
- 6.7 Measurement of Heart Rate (Resting & After Exercise)

UNIT 7 : PHYSIOLOGICAL ASPECTS OF PHYSICAL EDUCATION

- 7.1 Warming up - General & Specific and its Physiological basis
- 7.2 Functions and Effects of Exercise on Muscular & Skeletal Systems
- 7.3 Functions and Effects of Exercise on Respiratory & Circulatory Systems
- 7.4 Factors Affecting the Physical Fitness Components

UNIT 8 : CHANGING TRENDS IN PHYSICAL EDUCATION & SPORTS

- 8.1 Concept and Principles of Integrated Physical Education
- 8.2 Concept and Principles of Adapted Physical Education

- 8.3 Concept and Components of Occupational Health Hazards
- 8.4 Concept and Components of Health related fitness
- 8.5 Sports for All

Part B

Following sub topics related to any one Game/Sport of choice of student out of: Athletics, Badminton, Gymnastics, Judo, Skating, Swimming, Table Tennis, Taekwondo, Tennis, Yoga

UNIT 1

- 1.1 History of the Game/Sport
- 1.2 Latest General Rules of the Game/Sport
- 1.3 Specifications of Play Fields and Related Sports Equipments
- 1.4 Important Tournaments and Venues
- 1.5 Sports Personalities
- 1.6 Proper Sports Gear and its Importance

Unit 2

- 2.1 Fundamental Skills of the Game/Sport
- 2.2 Specific Exercises of Warm-up and Conditioning
- 2.3 Related Sports Terminologies
- 2.4 Sports Awards
- 2.5 Common Sports Injuries & its Prevention
- 2.6 CBSE Sports and its Organizational Set-up

IV. PHYSICAL EDUCATION

Class XII – Theory

Max.Marks 70

PART – A

UNIT 1 : PHYSICAL FITNESS & WELLNESS

- 1.1 Meaning & Importance of Physical Fitness & Wellness
- 1.2 Components of Physical Fitness & Wellness
- 1.3 Factors Affecting Physical Fitness & Wellness
- 1.4 Principles of Physical Fitness Development
- 1.5 Means of Fitness Development - Aerobic & Anaerobic, Games & Sports, Yoga and Recreational Activities

UNIT 2 : PLANNING IN SPORTS

- 2.1 Fixtures - Knock Out; League; Seeding and Bye
- 2.2 Intramurals And Extramurals
- 2.3 Formation Of Committees for Organizing Sports Events
- 2.4 Specific Sports Programmes - Health Runs; Run for Fun; Run for Unity; Run for Awareness; Run for Specific Causes.

UNIT 3 : SPORTS ENVIRONMENT

- 3.1 Meaning & Need for Sports Environment
- 3.2 Essential Elements of Positive Sports Environment
- 3.3 Role of Individual in Improvement of Sports Environment for Prevention of Sports Related Accidents
- 3.4 Role of Spectators and Media for Creating Positive Sports Environment

UNIT 4 : POSTURES

- 4.1 Meaning and Concept of Correct Postures - Standing And Sitting
- 4.2 Advantages of Correct Posture

- 4.3 Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow Legs and Scolioses
- 4.4 Physical Activities as Corrective Measures

UNIT 5 : YOGA

- 5.1 Meaning & Importance of Yoga
- 5.2 Yoga as an Indian Heritage
- 5.3 Elements of Yoga
- 5.4 Role of Yoga in Sports - Asanas, Pranayam and Mediation

UNIT 6 : SPORTS AND NUTRITION

- 6.1 Balanced Diet
- 6.2 Elements of Diet
- 6.3 Components of Diet
- 6.4 Role of Diet on Performance

UNIT 7 : TRAINING METHODS

- 7.1 Meaning, Concept and Principles of Training
- 7.2 Methods of Flexibility Development
- 7.3 Methods of Strength Development - Isometric & Isotonic
- 7.4 Methods of Endurance Development - Continuous Method, Interval Training & Fartlek.
- 7.5 Methods of Speed Development
- 7.6 Circuit Training

UNIT 8 : PSYCHOLOGICAL ASPECTS OF PHYSICAL EDUCATION

- 8.1 Definition & Importance of Sports Psychology
- 8.2 Types and Techniques of Motivation
- 8.3 Developmental Characteristics at Different Stages of Growth

- 8.4 Adolescent Problems & its Management
- 8.5 Ethics in Sports
- 8.6 Anxiety and its Management

Part B

Following sub topics related to any one Game/Sport of choice of student out of: Basketball, Cricket, Football, Handball, Hockey, Kabaddi, Kho Kho, & Volleyball.

Unit 1

- 1.1 History of the Game/Sport
- 1.2 Latest General Rules of the Game/Sport
- 1.3 Specifications of Play Fields and Related Sports Equipments
- 1.4 Important Tournaments and Venues
- 1.5 Sports Personalities
- 1.6 Proper Sports Gear and its Importance

Unit 2

- 2.1 Fundamental Skills of the Game/Sport
- 2.2 Specific Exercises of Warm-up and Conditioning
- 2.3 Related Sports Terminologies
- 2.4 Sports Awards
- 2.5 Common Sports Injuries & its Prevention
- 2.6 SGFI & its Organizational Set-Up

V. PART 'C' - PRACTICAL

(For classes XI & XII)

Max.Marks 30

The Practical Syllabus has been divided into five parts & the marks allotted for each part are as follows:

(i)	Physical Fitness Test (Compulsory)	:	10 Marks
(ii)	Skill of Chosen Sport/Game	:	05 Marks
(iii)	Any Five Asanas	:	05 Marks
(iv)	Viva	:	05 Marks
(v)	Record Book(File)*	:	05 Marks

* Record Book (File) must include other than the details of Game/Sport of your choice the following:

- (i) BMI calculation of minimum ten Students
- (ii) AAHPHER Test Score of minimum ten Students

29. FASHION STUDIES (Code No. 053)

Preamble:

Fashion is dynamic and ever changing. It is one of the most powerful forces in our lives. It influences every facet of our lifestyle at a particular period in time e.g. the clothes we wear, the music we listen, the food we eat, where we go for holiday or the car we drive in etc.

Fashion is a big business and key driver for several industries e.g. apparel, accessories, textiles, automobiles etc.

The purpose of the course 'Fashion Studies' is to tell the students about the fundamentals of fashion design. Fashion Design as a profession includes the entire process of designing and producing fashion apparels from the fibre and yarn stage to the finished product. The course will give an overview of fashion design and elaborate on different aspects like elements of design, history of fashion, fabrics, understanding of the body, pattern development and garment construction.

CLASS XI

Unit - I : Introduction to Fashion Studies

10 Marks 30 Periods

Objectives of the course

- ✓ To learn appropriate fashion terminology
- ✓ To understand the fashion business
- ✓ To gain knowledge of the working and interrelationships of different industries and services that comprise fashion business
- ✓ To differentiate and appreciate the nuances of fashion terminology

Learning outcome

After finishing the course, the students shall be able

- ✓ To use appropriate terminology used in fashion world
- ✓ To understand the interrelationship in fashion business
- ✓ To get the overview of fashion

Course content

- ✓ Fashion-definition of fashion in all its aspects.
- ✓ Style-the definition of style and differentiation from fashion.
- ✓ Trend-definition of the term, origin of trends and fashion.
- ✓ Understanding the similarity and difference between design art and craft.
- ✓ Understanding the role of fashion professionals like designer, stylist, merchandiser and coordinator.

- ❖ Fashion Cycle, International Trade in Fashion.
- ❖ The various aspects of fashion business. designing, manufacturing and retailing scenarios for apparel.

Methodology of teaching: Illustrated lectures with slides and visuals

Reference Text: Concept to consumer, by Gini Stephens Frigns
 Inside Fashion Business, by v. Jeanette A. Jarrow,
 Miriam Guerro, Beatrice Judelle

Unit. II: Introduction to Fabrics

20 Marks

50 Periods

Objectives of the course

- ✓ To initiate students into the world of fabrics
- ✓ To introduce students to the origin and properties of natural, manmade and synthetic fibres and fabrics.
- ✓ To make students aware of spinning, weaving, knitting and bonding etc.
- ✓ To teach the students behavior of fabrics in terms of use and performance.
- ✓ To brief them about various finishes.

Learning outcome

After finishing the course, the students shall be able

- ✓ To identify and differentiate between fabric varieties
- ✓ To understand the various processes of fabric manufacturing
- ✓ To understand the various kinds of finishes both of routine nature and special finishes that enhance performance and aesthetics of the fabric.

Course content

- ✓ Uses of fabrics-for various categories of apparel.
- ✓ Understanding the characteristics and properties of natural, synthetic and manmade fibres and blends.
- ✓ Conversions of fibres into yarns, novelty yarns, difference between thread and yarn.
- ✓ Conversion of yarns into fabrics using looms & knitting machines etc. illustrated through actual fabric samples.
- ✓ Understanding different type of routine fabric finish - from grey fabric to fully finished fabric.
- ✓ Performance finishes: fabric finishes enhancing properties of fabrics such as shrink resistance, permanent press, flame retardant etc.

- ✓ Harmony to achieve the condition in which all the elements of design work together successfully.
- ✓ Understanding of balance and proportion to enable the students to emphasize or to underplay and certain elements.

Teaching Methodology: Illustrated lectures with slides, visuals and demonstrations wherever required.

Evaluation Criteria

- Understanding of the assignment given
- Quality of the work submitted
- Daily assessment to be done after each student presents their work
- Marks would be given for level of improvement of work
- 10% marks to be given for punctuality, regularity and sincerity
- Timely completion of the project

Reference Text: 'Grafix' by Wolfganghageney

Repeat pattern-Peter Phillips, Gillian Bunce

Design Elements 2 -Richard Hora

Unit - IV : Elements of Garment Making 20 Marks (Theory) 80 Periods
15 Marks (Practical)

Objectives of the course

- ✓ To Introduce the students to garment making
- ✓ To make them familiar with sewing machine and its parts
- ✓ To make them familiar with use of other sewing aids
- ✓ To teach them basic hand and machine stitches
- ✓ To teach them simple machine operations

Learning outcome

After finishing the course, the students shall be able

- ✓ To work proficiently on the sewing machine
- ✓ To rectify simple problems of the machine
- ✓ To stitch different seams on the machine
- ✓ To finish edges with hand stitches
- ✓ To make gathers, pleats and tucks on the fabric

Course content

- ✓ Introduction to sewing machine, its various parts and functions along with other sewing aids.

- ✓ Understanding the simple problems of sewing machine and its maintenance.
- ✓ Develop proficiency in straight and curved seams.
- ✓ Basic hand stitches - basting, hemming, back stitch, running stitch etc. with their end use.
- ✓ Basic machine seams used for stitching or finishing various parts of the garments like plain seam French seam, flat fell, lapped etc.
- ✓ Fabric manipulation like gathers, pleats and tucks etc.

Teaching Methodology: Illustrated lectures with slides, visuals and demonstrations where ever required.

Evaluation Criteria

- Understanding of the assignment given
- Quality of the work submitted
- Daily assessment to be done after each student presents their work
- Marks would be given for level of improvement of work
- 10% marks to be given for punctuality, regularity and sincerity
- Timely completion of the project

Reference Text: Encyclopaedia of Dressmaking, by Marshall Cavendish
Readers Digest book of Sewing, Encyclopedia of Sewing.

Fashion Studies

Practicals

Class - XI Practical

- Exercises using elements of art like line, form, colour, texture, space etc. following the principles of design
- Exercises on colour wheel, value chart, intensity chart, colour schemes
- Exercises on hand stitches - basting, running, hemming, back stitch and its variations
- Seams - plain, French, lapped, flat fell, Hongkong, eased and top stitched
- Gathers, pleats and tucks
- End term project
- Viva voce and portfolio

CLASS-XII

Unit - I: History of Fashion

15 Marks 40 Periods

Objectives of the course

- ✓ To give an overview of the history of fashion from ancient civilisation through the ages to the present.

- ✓ To emphasise on the socio-economic and political factors influencing clothing and fashion.

Learning outcome

After finishing the course, the students shall be able

- To understand the history of fashion through the ages
- To be aware of origin of various trends
- To differentiate the style of apparel in different cultures
- To appreciate the differences that some of the important events have made on fashion

Course content

- ❖ Theories of clothing - adornment, protection, identification and ritualistic.
- ❖ Concept of fashion
 - ✓ Body decoration, painting, scarification
 - ✓ Draping - Greco-Roman, Indian and other continents
 - ✓ Stitched garments - war uniforms, amours inspired
 - ✓ Comparison of western and oriental war uniforms
- ❖ Influence of world wars on fashion - post war fashion in its most primitive sense became generalized to larger groups of people as society became organized in classes each having a different role in economic, social and intellectual development.
- ❖ Influence of industrial revolution-the twentieth century has witnessed a new situation with industrial revolution where textiles and clothes traditionally custom made are now being mass produced.
- ❖ Automation and the various technical and scientific developments shaping the finest classless society in many centuries.
- ❖ Evolution of Indian fashion in the present century.

Teaching Methodology: Illustrated lectures with slides and visuals

Reference Text: Kaleidoscope of fashion, by Mehar Castilino
Ancient Indian Costume, by Roshan Alkazi

Unit - II. Basic Pattern Development 20 Marks (Theory) 80 Periods
15 Marks (Practical)

Objectives of the course

- ✓ To introduce students to the world of fashion designing through pattern development.
- ✓ To explain important skill that enable the designer to convert a design sketch into a three dimensional form.
- ✓ To develop basic blocks for bodice, sleeve and skirt.

- ✓ To understand and implement the concept of test fits and to convert paper patterns into muslin.

Learning outcome

After finishing the course, the students shall be able

- To understand the basic skill of pattern making
- To understand and appreciate the concept of fit and balance
- To develop basic blocks from measurement charts
- To test fit the pattern
- To Develop patterns for simple designs using basic blocks

Course content

- ❖ Methods of measuring body and dress form.
- ❖ Relationship of sizes and measurements.
- ❖ Tools of pattern making.
- ❖ Common terms used in pattern development.
- ❖ Introduction to Pattern Development for womens wear - how patterns are made and developed, the importance of fit and balance and methods of achieving it.
- ❖ Basic bodice - developed from the standard measurement chart and test fitted on the dress form.
- ❖ Marking the important details such as darts, seam allowances, notches, grain lines etc.
- ❖ Marking of garment details i.e. Armholes, Necklines- V, U, round, boat, square.
- ❖ Develop basic sleeve block and set into the armhole of the basic bodice.
- ❖ Develop basic skirt block with one dart or two darts.
- ❖ Basic of collar development and drafting basic collars like Peter Pan and Chinese.
- ❖ Dart manipulation. the mechanism of shifting darts from one position to another or into a seam by slash and spread method.

Final product: Student will learn to develop patterns from basic blocks for simple designs for skirts and blouses.

Teaching Methodology: Illustrated lectures with slides, visuals and demonstrations where ever required.

Evaluation Criteria

- Understanding of the assignment given
- Quality of the work submitted
- Daily assessment to be done after each student presents their work
- Marks would be given for level of improvement of work
- 10% marks to be given for punctuality, regularity and sincerity

- Timely completion of the project.

Reference Text Pattern making by Helen Armstrong

Pattern making for women's wear by Winifred Aldrich

Pattern making by Pamela Stringer.

Unit. III: Elements of Fashion

15 Marks

40 Periods

Objectives of the course

- ✓ To introduce students to the basic elements of fashion:
- ✓ To teach students about movement of fashion, fashion cycle, categories of clothing etc.
- ✓ To sensitise students about different items of garments in each category i.e. menswear, womenswear and chilrenswear
- ✓ To teach students the difference between high fashion and mass fashion
- ✓ To distinguish between custom made & ready to wear

Learning outcome

After finishing the course, the students shall be able

- To understand the elements of fashion
- To be aware of movement of fashion
- To understand the fashion cycle
- To know the various categories of menswear, womenswear and childrenswear
- To understand the difference between hi-fashion & mass fashion and custom made & ready to wear.

Course content

- ❖ Menswear, women's wear and kidswear
- ❖ Menswear - shirts, trousers, formal jackets, suit and sporty suit
- ❖ Womenswear-dresses, blouses, skirts, trousers, kameezes, saris and blouses
- ❖ **Kids wear** - categories of children for 0-15 years and various governments like frocks, skirts, blouses, trousers, dungarees, jackets etc. highlighting the need of age group for which they are designed.
- ❖ Trims used for the fashion apparel
- ❖ Hi-fashion-custom and ready to wear, the fashion brand (National & International)
- ❖ Mass fashion-ready to wear, Mass RTW brands (National & International)

Teaching Methodology: Illustrated lectures with slides and visuals.

Reference Text: Concept to consumer by Gini Stephens Frings

Encyclopaedia of Fashion details

Unit - IV: Basics of Garment Making

**20 Marks (Theory) 80 Periods
15 Marks (Practical)**

Objectives of the course

- ✓ To assemble a garment
- ✓ To construct a bodice using different seams
- ✓ To make a placket for bodice opening
- ✓ To finish a neckline by both piping and facing
- ✓ To set in a sleeve in the arm hole
- ✓ To put gathers or pleats in the skirt and finish the waist with a waist band or attach a bodice.

Learning outcome

After finishing the course, the students shall be able

- To join various parts of the garment and construct a complete garment
- To finish a bodice
- To set in the sleeve
- To stitch a skirt

Course content

- Understanding fabric types and selection of underlining, interfacing, inter-lining and lining.
- Marking methods and preparing fabric for cutting
- Pattern layout and cutting of special fabrics
- Assembling of bodice using different seams and appropriate finish for side seam and shoulder seams.
- Concept of slit and seam plackets. Various plackets and placement of fasteners on different parts of the garment.
- Appropriate neckline finishes with piping, bias facing and shaped facing. Importance and use of stay stitching.
- Sleeve attachment to the bodice by setting in the sleeve into armhole.
- Assembling of skirts, finishing gathers and pleats in a waistband.

Final product

Constructing a skirt and blouse using pattern template.

Teaching Methodology: Illustrated lectures with slides, visuals and demonstrations wherever required.

Evaluation Criteria

- Understanding of the assignment given

- Quality of the work submitted
- Daily assessment to be done after each student presents their work
- Marks would be given for level of improvement of work
- 10% marks to be given for punctuality, regularity and sincerity
- Timely completion of the project.

Reference Text: Encyclopaedia of dressmaking by Marshall Cavendish
 Readers Digest book of Sewing
 Encyclopaedia of Sewing

Class - XII Practicals

- Prepare draft and test fit according to the measurements of the dressform the following-
 womenswear basic block, sleeve block, skirt block, collars - Chinese and Peterpan
- Exercises on dart manipulation using slash and spread method

Garment stitching and finishing

- Darts
- Waist bands
- Pockets
- Placket - slit and seam
- Neckline finish
- Sleeve attachments
- Construction of garment - skirt and blouse using pattern templates
- End term project
- Viva voce and portfolio

Lab requirement for a batch of 30 students

Lab size - 35ft x 20 ft. (minimum)

AC environment

Item	Nos.
Industrial sewing machines with power (costs at least Rs. 4,500/- each)	30
Pattern making tables 5 ft x 4 ft (cork top)	8 (4 students/tab)
Dress forms (half) costs Rs. 8000/- each	30 (one per student)
Steam irons @ Rs. 1000/-	4
Ironing boards @ Rs. 500/-	4
Soft boards	All around the wall

Stools	30
White board	1
Black board	1

Approximate cost will be Rs. 5,00,000/-

Selection criteria of school

They should have ability to provide appropriate environment, space, equipment, machinery and maintenance, trained faculty, exclusive library for the course, willingness to upgrade facility and faculty.

30. FINE ARTS

A student may offer any one of the following courses:

(a) **Painting** (Code No. 049)

OR

(b) **Graphics** (Code No. 050)

OR

(c) **Sculpture** (Code No. 051)

OR

(d) **Applied Art-Commercial Art** (Code No. 052)

The following art terminologies for all the four subjects are prescribed only for reference and general enrichment.

1. Elements of Composition : Point, line, form, colour, tone, texture and space.
2. Principles of Composition : Unity, harmony, balance, rhythm, emphasis and proportion, abstraction and stylisation.
3. Drawing & Painting : Foreshortening, perspective, eye-level, fixed point of view, Vanishing point, ratio-proportion, sketching, proportion sketching, drawing, light & shade, painting from still-life, land- scape, anatomy, vertical, horizontal, two & three dimensional, transparent & opaque.

Materials : Paper (Cartridge, Handmade etc.), pencil, water, acrylic colours, tempera colours, poster colours, pastel colours, waterproof ink, canvas and hard-board.
4. Media of Composition : Collage, Mosaic, Painting, Mural, Fresco, Batik Tie & Dye.
5. Sculpture : Relief and round sculpture, modelling with clay, terra-cotta, carving in wood, stone, bronze casting, Plaster of Paris and metal welding.
6. Graphics : Linocut, relief printing, etching, Lithography, Silk screen printing letter press and offset printing.
7. Applied Art : Book cover design and illustration, cartoo, poster, advertisements for newspaper and magazine animation and printage processes., photography, computer graphic, hoarding and T.V.

8. Portfolio Assessment Method

Introduction : The Art Portfolio will consist of a compilation of all art work, from sketch to finished product. The submission would include both the original and improved versions of assigned tasks reflective of gradual improvement. Step by step development of the work will be assessed in all units.

Components of a Portfolio :

- Schedule of work
- Research Skills
- Resources and materials
- Connections with artists / art movements
- Art making skills
- Personal artist statement
- Studies (e. g. composition/techniques-medium)
- Picture of the final work (Reflective skills)
- Evaluation of final work (affective skills)
- any kind of personalized notes relation to art

Profile of Learners Growth

Values and Attitudes Rubric

The learner develops the ability to :

- Respect, appreciate and demonstrate an open mind towards the artistic expression of others
- Appears enthusiastic and willing to study artistic expressions from other cultures or regions of the world that are very different from own.
- Accept different forms and styles and tries to explore their meaning.
- Be sensitive towards other`s creations
- Be ready to research and transfer his/her learning to his / her own art
- Take initiative
- Be responsible for his/her own learning and progress
- Apply theoretical knowledge in practical contexts
- Possess information and communication technology skills
- Be resourceful and organize information effectively
- Listen effectively

PORTFOLIO ASSESSMENT FOR FINE ARTS MAY BE DONE ON THE BASIS OF FOLLOWING CRITERIA

Creativity

Candidates are required to produce evidence that demonstrates a creative approach to problem-solving. Evidence should also include the ability to interpret a given brief and original approaches to producing a solution. Sketchbooks, notebooks and relevant support material should form part of this evidence.

1. Drawing
2. Detailed Study - observation, record, analysis, interpreting a variety of subject.
3. Mood reflected
4. Follow-up of the Fundamentals of Visual Arts (Elements and Principles)
5. Message the artist wants to convey

Innovation

The knowledge gained with the help of case study (historical importance, great artist work). How the above has been understood in relation to the topic or the theme taken up by the student?

Technique

To foster creativity and self expression (basic understanding of colour concept and application in relation to colour and texture of the material used by the student). Size, details, proportion required according to the base used for the painting medium chosen according to their Art stream. Techniques studied from folk style, contemporary art or traditional art should be used while creating a new concept.

The learners :

- Discover their potential for creativity, self-expression and visual awareness through painting.
- Feel confident with the chosen medium as a means of communicating and generating ideas.
- Develop observation, recording, manipulation and application skills.
- Experiment with a range of media and techniques.
- Relate their work to other artists work and understand the historical context of this work.
- Understand the basic principles of colour.
- Develop critical awareness.

Execution of Work

- Highlight the method of work giving a historical study of the work.
- Originality in the presentation (paintings, sketches etc.)
- Demonstrate an understanding of basic colour principles, colour mixing and representation.
- Employ a variety of traditional and experimental techniques and processes

- Use a variety of media and materials
- Observe, record, analyse, interpret a variety of subjects, including :
 - the manufactured environment
 - the natural environment
 - the human figure
- Present evidence of personal enquiry and self expression
- Discuss and relate own work to recognized artists work
- Observe colour in other craft and design areas
- Make informed critical judgement on work in progress

Experimentation

A. Progressive Work

Candidates are required to show evidence of research carried out. It is expected that their skills will demonstrate evidence of process and the exploration of a wide range of subjects. An accepted standard of achievement using a range of media and material should be an integral part of the candidate's development.

B. Skills

Sound aesthetic judgement and organizational skills should be demonstrated in the process of work presented by a candidate.

C. Logical organization and collection of creations.

D. Critical evaluation and aesthetic judgement applied.

(A) PAINTING **(Code No. 049)**

Introduction

The course in Painting at Senior Secondary stage as an elective subject is aimed to develop aesthetic sense of the students through the understanding of various important well known aspects and modes of visual art expression in India's rich cultural heritage from the period Indus valley to the present time. It also encompasses practical exercises in drawing and painting to develop their mental faculties of observation, imagination, creation and physical skills required for its expressions.

Objectives

(A) Theory (History of Indian Art)

The objective of including the history of Indian Art for the students is to familiarise them with the various styles and modes of art expressions from different parts of India. This would enrich their vision and enable them to appreciate and develop an aesthetic sensibility to enjoy the beauty of nature and life. The students will also have an opportunity to observe and study the evolution of its mutations and synthesis with other style and the rise of an altogether new style. The students should be made aware of art as a human experience. The teachers should be able to expose them to the wide range of artistic impressions, the media and the tools used. The history of Indian Art is a long one. Hence the students would be acquainted with brief glimpses of the development of Indian Visual Art as are required for concept formation. Examples included in the course of study are selected because of their aesthetic qualities and are intended purely as guidelines.

(B) Practicals

The purpose of introducing practical exercises :in Painting is to help and enable the students:

- To develop skill of using drawing and painting material (surface, tools and equipments etc.) effectively.
- To sharpen their observation skills through study of common objects and various geometrical and non-geometrical forms found in life and nature.
- To develop their skills to draw and paint these observations:
- To develop an understanding of Painting-Composition (The use of the elements and the principles of painting -composition);
- To create the forms and the colour schemes in imagination with an ability to express them effectively in drawing and painting;
- To express the different feelings and moods of life and nature in lines, forms and colours.

CLASS XI (THEORY)

One Theory Paper

Time: 2 Hours

40 Marks

Unitwise Weightage

Units	Marks
History of Indian Art	
1. Pre-Historic Rock Paintings and Art of Indus Valley	10
2. Buddhist, Jain & Hindu Art	15
3. Temple Sculpture. Bronzes and Artistic aspects of Indo- Islamic Architecture	15
Unit 1: Pre-historic Roack Paintings and Art of Indus Valley	12 Pds.

(2500 B.C. to 1500 B.C.)

1 A. Pre-Historic Rock-Paintings

Introduction

- (1) Period and Location
- (2) Study of following Pre-historic Paintings :
 - (i) A Roaring Animal, Bhimbethaka
 - (ii) Wizard's Dance, Bhimbethaka

B. Introduction

- (i) Period and Location.
- (ii) Extension: In about 1500 miles
 - (a) Harappa & Mohenjo-daro (Now in Pakistan)
 - (b) Ropar, Lothal, Rangpur, Alamgirpur, Kali Bangan, Banawali and Dhaula Veera (in India)

(2) Study of following

Sculptures and Terracottas:

- (i) Dancing girl (Mohenjo-daro)
Bronze, 10.5 x 5 x 2.5 cm.
Circa 2500 B.C.
(Collection: National Museum, New Delhi).
- (ii) Male Torso (Harappa)
Red lime Stone, 9.2 x 5.8 x 3 cms.
Circa 2500 B.C.
(Collection: National Museum, New Delhi).
- (iii) Mother Goddess (Mohenjo-daro) terracotta, 22 x 8 x 5 cm.
Circa 2500 B.C.
(Collection: National Museum New Delhi).

(3) **Study of following**

Seal:

- (i) Bull (Mohenjo-daro)
Stone (Steatite), 2.5 x 2.5 x 1.4 cm.
Circa 2500 B.C.
(Collection: National Museum, New Delhi).

(4) **Study of following :**

Decoration on earthen wares:

- (i) Painted earthen-ware (Jar) Mohenjo-daro
(Collection: National Museum, New Delhi).

Unit 2: Buddhist, Jain and Hindu Art

24 Pds.

(3rd century B.C. to 8th century A.D.)

(1) **General Introduction to Art during Mauryan, Shunga, Kushana Gandhra and Mathura style & Gupta period:**

(2) **Study of following Sculptures:**

- (i) Lion Capital from Sarnath (Mauryan period)
Polished sand stone,
Circa 3rd Century B.C.
(Collection: Sarnath Museum, U.P.)
- (ii) Chauri Bearer from Didar Ganj (Yakshi) (Mauryan period)
Polished sand stone
Circa 3rd Century B.C.
(Collection: Patna Museum, Bihar)
- (iii) Bodhisattva head from Taxila (Kushan period-Gindhara style)
Stone, 27.5 x 20 x 15c.m.
Circa 2nd Century A.D.
(Collection: National Museum, New Delhi)
- (iv) Seated Buddha from Katra Tila Mathura-(Kushan Period)-Mathura Style
Red-spotted Sand Stone, Circa 3rd Century AD.
Stone
(Collection: Govt. Museum, Mathura)
- (v) Seated Buddha from Sarnath (Gupta period)
Stone

Circa 5th century AD

(Collection: Sarnath Museum U.P.)

(vi) Jain Tirathankara (Gupta period)

Stone

Circa 5th Century A.D.

(Collection : State Museum, Lucknow U.P.)

(3) Introduction to Ajanta

Location, period, No. of caves, Chaitya and Vihara, Paintings and Sculptures, subject-matter and technique etc.

(4) Study of Following Painting & Sculpture:

(i) Padmapani Bodhisattva (Ajanta Cave No. I, Maharashtra)

Mural Painting

Circa 5th Century A.D.

(ii) Mara Vijay (Ajanta Cave No. 26)

Sculpture in stone.

Circa 5th Century A.D.

Unit 3: Temples Sculpture, Bronzes and Artistic aspects of Indo-Islamic Architecture 36 Pds.

(A) Artistic aspects of Indian Temple sculpture

(6th Century A.D. to 13th Century A.D.)

(1) Introduction to Temple Sculpture

(6th Century A.D. to 13th Century A.D.)

(2) Study of following Temple-Sculptures;

(i) Descent of Ganga (Pallava period, Mahabalipuram Tamilnadu),
Granite rock Circa 7th Century A.D.

(ii) Ravana shaking Mount Kailash (Rashtrakuta period, Ellora, Maharashtra)

Stone

8th Century A.D.,

(iii) Trimurti (Elephanta, Maharashtra)

Stone

Circa 9th Century A.D.

(iv) Lakshmi Narayana (Kandariya Mahadev Temple) (Chandela period,

Khajuraho, M.P.)

Stone

Circa 10th Century A.D.

- (v) Cymbal Player, Sun Temple (Ganga Dynesty, Konark, Orissa)

Stone.

Circa 13th Century A.D.

- (vi) Mother & Child (Vimal-Shah Temple, Solanki Dynesty, Dilwara, Mount Abu, Rajasthan)

White marble.

Circa 13th Century A.D.

(B) Bronzes :

12 Pds.

- (1) Introduction to Indian Bronzes
(2) Method of casting (solid and hollow)

(3) Study of following south Indian Bronzes:

- (i) Nataraj (Chola period Thanjavur Distt., Tamilnadu)

12th Century A.D.

(Collection: National Museum, New Delhi.)

- (ii) Devi (Uma) Chola Period

11th Century A.D.

(Collection: National Museum, New Delhi.)

(C) Artistic Aspects of the Indo-Islamic Architecture

12 Pds.

- (1) Introduction
(2) **Study of following architectures:**
(i) Qutab Minar, Delhi
(ii) Taj Mahal, Agra
(iii) Gol Gumbaj of Bijapur.

CLASS XI (Practical)

One Practical Paper

Time: 6 Hours (3+3)

60 Marks

Unitwise Weightage

Units	Marks
1. Nature and Object Study	20
2. Painting Composition	20
3. Portfolio Assessment	20

Unit 1: Nature and Object Study 60 Pds.

Study of two or three natural and geometric forms in pencil with light and shade from a fixed point of view. Natural forms like plants, vegetables, fruits and flowers etc., are to be used. Geometrical forms of objects like cubes, cones, prisms, cylinders and sphere should be used. (20 Marks)

Unit 2: Painting Composition

- (i) Simple exercises of basic design in variation of linear geometric and Rhythmic shapes in primary and secondary colours to understand designs as organised visual arrangements. (10 Mark) 30 Pds.
- (ii) Sketches from Life and Nature (10 Mark) 30 Pds.

Unit 3: Portfolio Assessment

- (a) Record of the entire year's performance from sketch to finished product. (10 Marks)
 - (b) Five selected Nature and object study exercises drawings in any media done during the session including minimum of two still life exercise. (5 Mark) 24 Pds.
 - (c) Two selected works of paintings done during the year (5 Mark) 24 Pds.
- These selected works prepared during the course by the candidates and certified by the school authorities as the work done in the school will be placed before the examiners for assessment.

- Note:**
1. The candidates should be given one hour-break after first three hours.
 2. The time-table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

CLASS XII (THEORY)

One Theory Paper

Time: 2 Hours

40 Marks

Unitwise Weightage

Units	Marks
History of Indian Art	
1. The Rajasthani and Pahari Schools of Miniature Painting	10
2. The Mughal and Deccan Schools of Miniature Painting	10
3. The Bengal School of Painting	10
4. The Modern Trends in Indian Art	10

Unit 1: The Rajasthani and Pahari Schools of Miniature Painting

(16th Century A.D. to 19th Century A.D.)

24 Pds.

A brief introduction to Indian Miniature Schools: Western-Indian, Pala, Rajasthani, Mughal, Central India, Deccan and Pahari.

(A) The Rajasthani School :

- (1) Origin and Development
- (2) Sub-Schools-Mewar, Bundi, Jodhpur, Bikaner, Kishangarh and Jaipur
- (3) Main features of the Rajasthani School
- (4) Study of the following Rajasthani Paintings:

Title	Painter	Sub-School
Maru-Ragini	Sahibdin	Mewar
Raja Aniruddha Singh Hara	Utkal Ram	Bundi
Chaugan Players	Dana	Jodhpur
Krishna on swing	Nuruddin	Bikaner
Radha (Bani- Thani)	Nihal Chand	Kishangarh
Bharat meets Rama at Chitrakut	Guman	Jaipur

(B) **The Pahari School:**

- (1) Origin and development
- (2) Sub-Schools-Basohli and Kangra
- (3) Main features of the Pahari School
- (4) Study of the following Pahari Paintings:

Title	Painter	Sub-School
Krishna with Gopis	Manaku	Basohli

Nand, Yashoda and
Krishna with Kinsmen

going to Vrindavana

Nainsukh

Kangra

Unit 2: The Mughal and Deccan Schools of Miniature Painting (16th Century AD to 19th Century A.D.) **24 Pds.**

(A) The Mughal School

- (1) Origin and development
- (2) Main features of the Mughal School
- (3) Study of the following Mughal Paintings:

Title	Painter	Period
Krishna Lifting Mount Goverdhan	Miskin	Akbar
Babur Crossing the River Sone	Jagnath	Akbar
Jahangir Holding the Picture of Madona	Abul Hassan	Jahangir
Falcon on a Bird Rest	Ustad Mansoor	Jahangir
Kabir and Raidas	Ustad Faquirullah Khan	Shahjahan
Marriage Procession of Dara Shikoh	Haji Madni	Provincial Mughal (Avadh)

(B) **The Deccan School**

- (1) Origin and development
- (2) Main features of the Deccan School
- (3) Study of the following Deccan Paintings:

Title	Painter	Sub-School
Dancers	Unknown	Hyderabad
Chand Bibi Playing Polo (Chaugan)	Unknown	Gol Konda

Unit 3: **The Bengal School of Painting**
(Above mid of the 19th Century) **24 Pds.**

- (A) (I) A. New Era in Indian Art-an introduction
B. Study of the following painting
 - (i) Rama Vanquishing the pride of the ocean-Raja Ravi Varma
- (2) Evolution of the Indian National Flag (First - 1906, Middle - 1921 and Final 1947 stages)
: Study of the form and the colour scheme

- (B) (1) Introduction to the Bengal School of Painting**
- (i) Origin and development of the Bengal School of painting
 - (ii) Main features of the Bengal School of painting
- (2) Contribution of Indian artists in the struggle for National Freedom Movement**
- (3) Study of the following paintings of the Bengal school:**
- (i) Journey's End - Abanindranath Tagore
 - (ii) Tiller of the Soil - Nandlal Bose
 - (iii) Rasa-Lila - Kshitindranath Majumdar
 - (iv) Radhika - M.A.R. Chughtai
 - (v) Meghdoot - Ram Gopal Vijaivargiya

Unit 4 The Modern Trends in Indian Art

Introduction

(1) Study of the following work of contemporary (modern) Indian Art' Paintings

- (i) Magician-Gaganendranath Tagore
- (ii) Mother and child-Jamini Roy
- (iii) Woman Face-Rabindranath Tagore
- (iv) Three Girls-Amrita Sher Gil

(2) Graphic-prints :

Study of the following

- (i) Whirl pool-Krishna Reddy
- (ii) Children-Somnath Hore
- (iii) Devi-Jyoti Bhatt
- (iv) Of Walls-Anupam Sud
- (v) Man, Woman and Tree K. Laxma Goud
- (vi) Mother Teresa-M.F. Husain.
- (vii) Birth of Poetry-K.K. Hebbar
- (viii) Gossip-N.S. Bendre
- (ix) Untitled-G.R. Santosh
- (x) Diagonal- Tyeb Mehta

(3) Study of the following pieces of Sculpture:

- (i) Triumph of Labour-D.P. Roychowdhury
- (ii) Santhal Family-Ramkinker Vajj

- (iii) Standing Woman-Dhanraj Bhagat
- (iv) Cries Un-heard-Amar Nath Sehgal
- (v) Ganesha- P.V.Jankiram
- (vi) Figure- Sankho Chaudhuri
- (vii) Chatturmukhi- Aekka Yada Giri Rao

Note: The names of artists and titles of their art work as listed above are only suggestive and in no way exhaustive. Teachers and students should expand this according to their own resources. However, the questions will be set from the above mentioned art works only.

PAINTING

CLASS XII (PRACTICAL)

One Practical Paper **Time: 6 Hours (3+3)** **60 Marks**

Unitwise Weightage

Units	Marks
1. Nature, and Object Study	20
2. Painting Composition	20
3. Portfolio Assessment	20

Unit 1: Nature and Object study **60 Pds.**

Studies on the basis of exercises done in class XI with two or three objects and drapery for background. Exercises in pencil with light and shade and in full colour from a fixed point of view.

Unit 2: Painting Composition **60 Pds.**

Imaginative painting based on subjects from Life and or Nature in water and poster colours with colour values.

Unit 3: Portfolio Assessment **48 Pds.**

- (a) Record of the entire years' performance from sketch to finished product. (10 Marks)
- (b) Five selected Nature and object Study exercises in any media done during the session, including minimum of two still life exercises. (5 Marks)
- (c) Two selected works of paintings done by the candidate during the year (5 Marks)

These selected works prepared during the course by the candidate and certified by the school authorities as the work done in the school will be placed before the examiners for assessment.

Note: The time-table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

Guidelines for Evaluation of Practical,

1. Marking Scheme:

Part I: Nature and Object Study,

- | | | | |
|---------------------------------|----|---|----------|
| (i) Drawing (composition) | 10 | } | 20 marks |
| (ii) Treatment of media/colours | 05 | | |
| (iii) Overall impression | 05 | | |

Part II: Painting Composition

- | | | | |
|---|----|---|----------|
| (i) Compositional arrangement including emphasis on the subject | 10 | } | 20 marks |
| (ii) Treatment of media (colour) | 05 | | |
| (iii) Originality and overall impression | 05 | | |

Part III: Portfolio Assessment

- | | | | |
|---|----|---|----------|
| (a) Record of the entire years' performance from sketch to finished product | 10 | } | 20 marks |
| (b) Five selected Nature and object study exercises in any media including minimum of two still lives | 05 | | |
| (c) Two selected painting compositions prepared on the basis of life and nature | 05 | | |

2. Format of the Questions:

Part I: Nature and Object Study

Draw and paint the still-life of a group of objects arranged on a drawing board before you, from a fixed point of view (given to you), on a drawing paper of half imperial size in pencil/colours. Your drawing should be proportionate 'to the size of the paper. The objects should be painted in realistic manner with proper light and shade and perspective etc. In this study the drawing-board is not to be included.

Note: A group of objects to be decided by the external and internal examiners jointly as per instructions. The objects for Nature study and object study are to be arranged before the candidates.

Part II: Painting Composition :

Make a Painting-Composition on anyone of the following five subjects in any medium (Water/Pastel, Tempera, Acrylic) of your choice on a drawing-paper of half imperial size either

horizontally or vertically. Your composition should be original and effective. Weightage will be given to a well composed drawing, effective use of media, proper emphasis on the subject matter and utilization of full-space.

Note: Any five subjects for Painting Composition are to be decided by the external and internal examiners jointly as per instructions and are to mentioned here strictly just before the start of the examination for part II.

3. (A) Instructions for the selection of the objects for Nature and Object Study:

1. The examiners, are to select/decide two or three. suitable objects in such a way so that Natural and Geometrical forms may be covered in the group of objects:
 - (i) Natural-forms-large size foliage and flowers, fruits, and vegetables etc.
 - (ii) Geometrical forms made of Wood/Plastic/Paper/ Metal/Earthen etc. such as cube, cone, prism, cylinder and sphere.
2. Objects should be selected generally of large (suitable) size.
3. An object relating to nature, according to the season and location of the examination centre, must be included in the group of objects. The natural-objects should be purchased/arranged only on the day of the examination so that its freshness may be maintained.
4. Two draperies in different colours (one in dark and other in light tone) are also to be included for background and foreground, keeping in view the colours and tones of the objects selected.

(B) Instructions to decide the subjects for Painting-Composition:

1. The examiners, are to select/decide five subjects suitable for Painting-Composition.
2. The subjects should be so designed that the candidates may get clear-cut ideas of the subjects and they can exercise their imagination freely, because it is not important what you do, but how you do it.
3. The examiners are free to select/decide the subjects, but these should be according to the standard of Class XII and environment of the school/candidates.

Some identified areas of the subjects for Painting-Composition are given below, in which some more areas may also be added:

- (i) Affairs of family friends and daily life.'
- (ii) Affairs of family Professionals.
- (iii) Games and sports activities.
- (iv) Nature
- (v) Fantasy
- (vi) National, religious, cultural, historical and social events and celebrations.

4. General Instructions to the examiners :

1. Candidates should be given one hour break after first three hours.

2. Work of the candidates, for Parts I, II and III, pre to be evaluated on the spot jointly by the external and internal examiners.
3. Each work of Part I, II and III, after assessment is to be marked as "Examined" and duly signed by the external and internal examiners jointly.

Some Reference Books Suggested for Teachers (For Practical Portion) :

1. "Paint Still life" by Claretta White yet to be revised (Walter T. Foster Publication).
2. "Art of Drawing" Grumbacher Library Wook (Walter T. Foster Publication).
3. "On Techniques" By Leon Frank (Walter T. Foster Publication).
4. "More Trees" by Fredrick Gardner (Walter T. Foster Publication).
5. "How to Draw and Paint Textures of Animals" By Walter J. Wilweding (Water T. Foster Publication).
6. "How to Draw and Paint Animal Expressions" by Walter J. Wilweding (Walter T. Foster Publication).
7. "Art of the Pencil" by Borough Johnson (Sir ISAAC Pitman & Sons Ltd., New Delhi).
8. "Design for you" by Ethel Jane Beitler (John Wilary & Sons Ltd., New Delhi).
9. "Complete Book of Artist's Techniques by Dr. Kurt Herbers, (Thomas and Hudson, London).

B. Graphics (Code No. 050)

Introduction

The Course in Graphics at Senior Secondary stage as an elective subject is aimed to develop aesthetic sense of the students through the understanding of various important, well known aspects and modes of Visual Art expression in India's rich cultural heritage from the period of Indus Valley to the present time. It encompasses also a wider range of practical exercises in making 'of Graphic prints for developing their mental faculties of observation, imagination creation and physical & technical skills.

Objectives

(A) Theory (History of Indian Art)

Note: As the syllabus of Graphics (Theory) is the same as that of Painting (Theory), its objectives are same.

(B) Practicals

The purpose of introducing practical exercises in Graphics is to help and enable to students to make simple compositions in monochrome and in colours through the various print-making techniques using methods and material specifically prescribed for adequate results. The students should be introduced to the subject by giving a short history of the print making techniques. They should be given exercises to inculcate respect for the tools and apparatus-used in the various processes including their maintenance and proper handling.

CLASS XI (THEORY)

One Theory Paper

Time: 2 Hours

40 Marks

Unitwise Weightage

Units	Marks
History of Indian Art	
1. Pre-Historic Rock-Paintings and Art of Indus Valley	10
2. Buddhist & Jain and Hindu Art	15
3. Temples Sculptures Bronzes and Artistic aspects of Indo- Islamic Artitecture	15

Notes: The Syllabus of Graphics (Theory) for Class XI is the same as that of Painting (Theory) for class XI given earlier.

CLASS XI (PRACTICAL)

One Practical Paper

Time: 6 Hours (3+3)

70 Marks

Unitwise Weightage

Units	Marks
1. Relief Printing through Linocut/Woodcut/Paper-cardboard	40
2. Portfolio Assessment	20

Unit 1: *To make Linocut/Woodcut/Paper-cardboard print on 1/4 Imperial sheet on a given subject* **120**

Syllabus for Relief Printing (Lonocuts/Woodcuts/Paper-cardboard Prints).

1. Introduction of the history of print making.
2. Printing methods and materials.
3. Characteristics of printing inks, solvents, and dyers.
4. Registration methods.
5. Simple, colour printing techniques.
6. Finishing of the Mounting and prints.

Unit 2: Portfolio Assessment

48 Pds.

- (a) Record of the entire years' performance from sketch to finished product (10 Marks)
- (b) The selected prints (either from Linocuts/Woodcuts/Paper-cardboard prints) prepared during the course by the candidate and certified by the school authorities as the work done in the

school are to be placed before the examiners for assessment. (10 Marks)

Note: 1. The candidates should be given one hour break after first three hours.

2. The time-table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

CLASS XII (THEORY)

One Theory Paper Time: 2 Hours 40 Marks

Unitwise Weightage

Units	Marks
History of Indian Art	
1. The Rajasthani and Pahari Schools of Miniature Painting	10
2. The Mughal and Deccan schools of Miniature Painting	10
3. The Bengal School of Painting	10
4. The Modern Trends in Indian Art	10

Note: The Syllabus of Graphics (Theory) for Class XII is the same as that of Painting (Theory) for class XII given earlier.

CLASS XII (PRACTICAL)

One Practical Paper Time: 6 Hours (3+3) 60 Marks

Unitwise Weightage

Unit	Marks
1. Making of graphic-print through Serigraphy/Lithography/Etching and Engraving (Intaglio Process) techniques	40
2. Portfolio Assessment	20

Unit 1: The students in the class are expected to opt for anyone of the following media depending upon the facilities available in their schools 120 Pds.

(a) Serigraphy.

1. The history of stencils and silk screen.
2. Methods and materials.
3. The use and maintenance of the squeeze.
4. Sealing, registration for colour, work and preparation for printing.
5. Solvents for cleaning, use and characteristics of printing inks.

6. Finishing Mounting and the print.

OR

(b) Lithography 120 Pds.

1. Introduction: Short history and the methods and material used in producing lithographic prints.
2. The use and characteristics of the Litho stone/Zinc plates.
3. The use of lithographic chalks and ink (Tusche).
4. Preparing for printing and use of various chemicals inking and taking proofs.
5. Papers used in lithography and getting the final Print.
6. Finishing and mounting the print.

OR

(c) **Etching and Engraving (Intaglio Process)** 120 Pds.

1. Introduction to intaglio technique with a short history, methods and materials, Etching press.
2. Preparing the plate and laying the ground (Resist) and Inking.
3. Characteristics of different types of grounds.
4. Characteristics and use of various acids.
5. Colour etching, use of stencils and marks.
6. Finishing and mounting the prints.

Unit2: Portfolio Assessment 48Pds.

- (a) Record of the entire years' performance from sketch to finished product (10 Marks)
- (b) Three selected prints prepared during the course by the candidate and certified by the school authorities as works done in the school and to be placed before the external examiner for assessment. (10 Marks)

Note: The time table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

GUIDELINES FOR EVALUATION OF PRACTICAL

1. Marking Scheme:

Part I: Graphic-Composition (Print Making)

- | | | |
|---|----|----------|
| (i) Emphasis on the subject | 10 | |
| (ii) Handling on the material and technique of print-making | 10 | 40 marks |
| (iii) Composition and quality of print | 20 | |

Part II: Portfolio Assessment

- (a) Record of the entire years' performance from sketch to finished product. 10
- Three selected Prints (4+3+3 marks for 3 prints) 10

2. Format of the questions:

Part I: Graphic Composition (print-making) 50 marks

Choose one of the print-making medium available and taught in your school viz. serigraphy, lithography, etching and engraving.

Make a Graphic-Composition on anyone of the five subjects given below according to the possibility and suitability of the medium:

(Note: Any five suitable subjects for “Graphic-Composition (Print-making)” are to be decided by the internal and external examiners jointly in accordance with the instructions are to be mentioned here).

Make use of line, tone and texture, exploiting the medium fully to realize composition.

Print your composition in one or two colours.

Pay special attention to print quality and cleanliness. Submit two identical prints along with all the rough layouts as your final submission.

Size of the plate:

- | | |
|---------------------------|----------------|
| (i) Serigraphy | 30 cm x 20 cm. |
| (ii) Lithography | 30 cm x 20 cm. |
| (iii) Etching & engraving | 30 cm x 20 cm. |

3. Instructions to decide the subjects for Graphic-Composition (Print-making):

1. The external and internal examiners, jointly are to select/decide five subjects suitable for Graphic-Composition (Print-Making).
2. Each subject should be so designed that the candidate may get a clear-cut idea of the subject, however, any candidate can perceive a subject in his/her own way but Graphic quality must be maintained in the composition.
3. The examiners are free to select/decide the subjects, but these should be according to the standard of class XII and environment of the school/candidates.

Some identified areas of the subjects for Graphic-Composition (Print-making) are given below in which some more areas may be added, if needed:

- (i) Affairs of family, friends and daily life.
- (ii) Affairs of Professionals.
- (iii) Games & Sports Activities.
- (iv) Nature.
- (v) Fantasy.
- (vi) National, religious & cultural events and celebrations.
- (vii) Ideas-personal, social, local, provincial, national or international.

4. Instructions to the examiners

1. Candidates should be given one hour break after first three hours.
2. Work of the candidates for part I & II is to be evaluated on the spot by the external and internal examiners jointly.
3. Each work of parts I & II, after assessment, is to be marked as examined and duly signed by the external and internal examiners.

Some Reference Books Suggested for Teachers.

1. "The Techniques of Graphic Art", by H. Van Kruhingen.
2. "Print Making", Harvevy Daniels (Hamlym).
3. "Art is Manual for Silk Screen Print Making", by Heavy Shockler.
4. "Print Making today", by Jules Helles.
5. "Silk Screen Techniques", J.I. Biege Leison, Dover Publication, New York.
6. "Introducing Screen Printing", Anthony Kinsey Walson Guplill, New York.
7. "The Art and Craft of Screen Process Printing", Kosloff, All the Bruce Publishing Co., New York.
8. "Practical Screen Printing", Stephen Russ, Studio Vista Walson Auptill, New York.
9. "Artists Manual for Silk, Screen Print making", Harry Shekler, American Artist's Group' New York.
10. "Lithography", Vau Nostrav, Reinhold.
11. "Lithography for Artists", Standley Loues, Oxford University Press.
12. "Linocuts and Woodcuts", Michael Rothenstein Studio Vista, London.
13. "Relief Printing", Michael Rothenstein Studio Vista, London.
14. "Etching, Engraving and Intaglio Printing", Anthony Gross, Oxford University Press.
15. "The Art of Etching", E.S. Sumaden Gouslable, London.

(c) Sculpture (Code No. 051)

Introduction

The Course in Sculpture at Senior Secondary stage as an elective subject is aimed at developing aesthetic sense of the students through the under standing of various important, well known aspects and modes of Visual Art expression in India's rich cultural heritage from the period of Indus Valley to the-present time. It encompasses also a wide range of practical exercises in making of various sculptures for developing their mental faculties of observation, imagination and creation and the physical and technical skills.

Objectives

(A) THEORY (History of Indian Art)

Note: As the syllabus of Sculpture (Theory) is the same as that of Painting (Theory), its objectives are same.

(B) PRACTICALS

The purpose of introducing practical exercises in sculpture is to help and enable, the students to make sculptures. All assignments should be designed to understand problems of volume, weight, play of form in space etc., as against rendering on flat two dimensional. Adequate technical skills may be provided depending on the facilities available.

CLASS XI (THEORY)

One Theory Paper **Time: 2 Hours** **40 Marks**

Unitwise Weightage

Units	Marks
HISTORY OF INDIAN ART	
1. Pre-Historic Rock-Painting and Art of Indus Valley	10
2. Buddhist & Jain and Hindu Art	15
3. Temple Sculpture and South Indian Bronze and Artistic aspects of Indo-Islamic Architecture	15

Note: The Syllabus of Sculpture (Theory) for Class XI is the same as that of Painting (Theory) for Class XI given earlier.

CLASS XI (PRACTICALS)

One Practical Paper **Time: 6 Hours (3+3)** **60 Marks**

Unitwise Weightage

Units	Marks
1. Modelling in Relief (in clay or Plaster Paris)	20
2. Modelling in Round (in clay or plaster of Paris)	20
3. Portfolio Assessment	20

Unit 1: Modelling in Relief on given subjects from life and nature. **60 Pds.**

Unit 2: Modelling in Round on given subjects from life and nature. **60 Pds.**
Handling of clay and its techniques, pinching, coiling, rolling etc.

Unit 3: Portfolio Assessment **40 Pds.**

(a) Record the entire years' performance from to finished product (10 Marks)

(b) Four selected pieces of works prepared during the course by the candidate and certified by the school authorities as works executed in the school are to be placed before the examiners for assessment. (10 Marks)

Note: 1. The candidate should be given one hour break after first three hours.

2. The time table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

CLASS XII (THEORY)

One Theory Paper

Time: 2Hours

40 Marks

Unitwise Weightage

Units	Marks
History of Indian Art	
1. The Rajasthani and Pahari Schools of Miniature Painting	10
2. The Mughal and Deccan Schools of Miniature Painting	10
3. The Bengal School of Painting	10
4. The Modern Trends in Indian Art	10

Note: The Syllabus of Sculpture (Theory) for Class XII is the same as that of Painting (Theory) for Class XII given earlier.

CLASS XII (PRACTICAL)

One Paper

Time: 6 Hours (3+3)

60 Marks

Unitwise Weightage

Units	Marks
1. Modelling in Relief (Clay and Plaster of Paris)	20
2. Modelling in Round (clay and Plaster of Paris)	20
3. Portfolio Assessment	20

Unit 1: Modelling in Relief* **60 Pds.**

Unit 2: Modelling in Round* **60 Pds.**

Unit 3: Portfolio Assessment **48 Pds.**

- (a) Record of the entire years' performance from sketch to finished product (10 Marks)
- (b) Four pieces of Works prepared during the course selected by the candidate and certified by the school authorities as work executed in the school are to be placed before the examiners for assessment.

* Use of clay Composition in hollow for baking.

* Modelling of simplified human figures, birds, animals and plants in relief and round.

* Geometrical shapes like cube, cone, cylinder, etc., and their composition in relief as an exercise in design study of textures. Use of plaster of Paris. (10 Marks)

Note: 1. The candidate should be given one hour break after first three hours.

2. The time table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

GUIDELINES FOR EVALUATION OF PRACTICAL

1. Marking Scheme:

Part I: Modelling in Relief

- | | | |
|---|----|-------------------|
| (i) Composition including emphasis on the subject | 10 | } 20 Marks |
| (ii) Handling of media | 05 | |
| (iii) Creative approach & overall impression | 05 | |

Part II: Modelling in Round

- | | | |
|---|----|-------------------|
| (i) Composition including emphasis on the subject | 10 | } 20 Marks |
| (ii) Handling of media | 05 | |
| (iii) Creative approach and overall impression | 05 | |

Part III: Portfolio Assessment

- | | | |
|---|-----|-------------------|
| (a) Record of the entire years' performance from sketch to finished product | 10 | } 10 Marks |
| (b) Four works of Sculpture consisting of: | | |
| (i) One Sculpture in Relief (High Relief) | 2.5 | |
| (ii) One Sculpture in Relief (Low Relief) | 2.5 | |
| (c) Two Sculpture in round | 05 | |

2. Format of the questions:

Part I: Modelling in Relief:

Make a Sculpture in Relief (low/high) on anyone of the following five subjects, The size should be within 25 to 30 cm. (horizontally or vertically) and about 4 cm. in thickness from the board.

(Note: Any five suitable subjects for “Modelling in Relief” are to be decided by the external and internal examiners jointly in accordance with the instructions and are to be mentioned here).

Part II: Modelling in Round:

Prepare a Sculpture in round, in clay medium, on anyone of the following five subjects. The height should be within 25 to 30 cm. horizontally or vertically.

Note: Any five suitable subjects for “Modelling in Round” are to be decided in accordance with the instructions and are to be mentioned here strictly just before the start of the examination for Part II. ‘

3. Instructions to decide the subjects for Modelling in Relief and Round:

- (1) The examiners are to select/decide five subjects suitable for Modelling in Relief and five subjects for Modelling in round. The subjects for “Modelling in Round” are to be conveyed to the candidates strictly just before the start of the examination for Part II.
- (2) Each subject should be so designed that the candidate may get a clear-cut idea of the subject, however, a candidate can perceive a subject in his/her own way. Distortion of human/animal forms may be allowed.
- (3) Choice of high or low relief should remain open to the candidates.
- (4) The examiners are free to decide the subjects but they should be according to the standard of class XII and environment of the school/candidates. Some identified areas of the subjects for Modelling in Relief are given below in which some more areas may also be included:
 - (i) Nature Study;
 - (ii) Design, natural, decorative, stylized and geometrical;
 - (iii) Family, friends and daily life;
 - (iv) Birds and animals;
 - (v) Games and sports activities;
 - (vi) Religious, social and personal activities;
 - (vii) Cultural activities;
 - (viii) Ideas - Personal, social, local, provincial, national and international.

4. General instructions to the examiners:

1. Candidates should be given one hour break after first three hours.
2. Work of the candidates of Parts I, II and III, is to be evaluated on the spot by the external and internal examiners jointly.
3. Each work of Parts I, II and III, after assessment, is to be marked as examined and duly signed by the external and internal examiners.

Some Reference Books Suggested for Teachers:

1. “Indian Sculpture”, by Chintaman Kar.
2. “Exploring Sculpture”, by Jan Amdell Mills & Boon, London.
3. “The Technique of Sculpture”, John W. Mills, P.T. Patsford Ltd., London!
4. “A History Sculpture of the world”, Sheldon Cneey, Thame and Hudson, London.
5. “Form and Space”, Edward Their, Thomes and Hudson; London.
6. “Sculpture and Ideas”, Michael F. Andrews.
7. “Modern Sculpture”, Jean Selz, Heinemann, London. ‘
8. “Creative Carving”, (Material techniques appreciation), Dons Z. Meilach, Pritam Publishing.

(D) Applied Art (Code No. 052)

COMMERCIAL ART

Introduction

The Course in Applied Art (Commercial Art) at Senior Secondary Stage as an elective subject is aimed to develop aesthetic sense of the students through the understanding to various important, well known aspects and modes of Visual Art expression in India's rich cultural heritage from the period of Indus Valley to the present time. It encompasses also a wide range of practical exercises in Commercial Art for developing their mental faculties of observation, imagination, creation and physical and technical skills.

Objectives

(A) THEORY (History of Indian Art)

Notes: As the syllabus of Applied Art-Commercial Art (Theory) is the same as that of Painting (Theory), its objectives are same.

(B) PRACTICALS

The purpose of introducing practical exercises in Applied Art (Commercial Art) is to help and able the students to develop professional competence in making Model Drawing Lettering, layout Preparation and poster so that they can link their lives with productivity.

CLASS XI (THEORY)

One Theory Paper

Time: 2 Hours

40 Marks

Unitwise Weightage

Units	Mark
HISTORY OF INDIAN ART	
1. Pre-Historic Rock-Paintings and Art of Indus Valley	10
2. Buddhist & Jain and Hindu Art	15
3. Temple Sculpture Bronze and Artistic aspects of Indo-Islamic Architecture	15

Note : The Syllabus of Applied Art-Commercial Art (Theory) for Class 'XI is the same as that of Painting (Theory) for Class XI given earlier.

CLASS XI (PRACTICALS)

One Practical Paper

Time: 6 Hours (3+3)

60 Marks

Unitwise Weightage

Units	Mark
1. Drawing	20
2. Lettering and layout	20
3. Portfolio Assessment	20

Unit 1: Drawing 60 Pds.

Drawing from Still-Life and Nature, medium-pencil monochrome/colour.

Unit 2: (a) Lettering 60 Pds.

(i) Study of lettering of Roman and Devnagri Scripts

(ii) Identification of some Type=faces and their sizes

(b) Layout

Making a simple layout with lettering as the main component.

Unit 3: Portfolio Assessment 48 Pds.

(a) Record of entire years' performance from sketch to finished product (10)

(b) Five selected drawings in any media done during the year including minimum three lives. (05)

(c) Two selected works in chosen subject done during the year. (05)

Note: 1. The candidate should be given one hour break after first three hours.

2. The time table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

CLASS XII (THEORY)

One Theory Paper

Time: 2 Hour

40 Marks

Unitwise Weightage

Units	Marks
HISTORY OF INDIAN ART	
1. The Rajasthani and Pahari Schools of Miniature Painting	10
2. The Mughal and Deccan Schools of Miniature Painting	10
3. The Bengal School of Painting	10
4. The Modern Trends in Indian Art	10

Note: The Syllabus of Applied Art-Commercial Art (Theory) for ClassXII is the same as that of Painting (Theory) for Class XII given earlier.

CLASS XII (PRACTICAL)

One Practical Paper

Time: 6 Hours (3+3)

60 Marks

Unitwise Weightage

Units	Marks
1. Illustration	20
2. Poster	20
2. Portfolio Assessment	20

Unit 1:	Illustration	60 Pds.
	Study of techniques of Illustration on given subjects and simple situations supported by Drawing from life and outdoor sketching in different media suitable for printing.	
Unit 2:	Poster	60 Pds.
	Making a poster with specified data and slogan on a given subject in two or four colours.	
Unit 3:	Portfolio Assessment	48 Pds.
	(a) Record of the entire years performance from sketch to finished product	(10)
	(b) Five selected drawings in any media done during the year including minimum of two illustrations	(05)
	(c) Two selected posters in chosen subject	(05)

Note: The time table to be so framed as to allow the students to work continuously for minimum of two periods at a stretch.

Guidelines for Evaluation of Practical

1. Marking Scheme:

Part I: Illustrations

- | | | |
|--|----|------------|
| (i) Composition including quality of drawing | 10 | } 20 marks |
| (ii) Emphasis on the subject with a specific situation | 05 | |
| (iii) Reproducing quality and overall impression | 05 | |

Part II: Poster

- | | | |
|---|----|------------|
| (i) Layout and Lettering | 10 | } 20 marks |
| (ii) Emphasis on the subject | 05 | |
| (iii) Proper colour scheme and overall impression | 05 | |

Part III: Portfolio Assessment

- | | | |
|--|----|------------|
| (a) Record of the entire years' performance from sketch to finished product | 10 | } 20 marks |
| (b) Five selected drawings in any media including minimum of two illustrations | 05 | |
| (c) Two selected posters in chosen subjects | 05 | |

2. Format of the questions:

Part I: Illustration

Make an illustration in black and white in any colour media on any one of the following five subjects with a specific situation.

Size of the illustration: 30 cm x 22 cm.

Note: Any five suitable subjects or illustration, decided by the external and internal examiners jointly in accordance with the instructions are to be mentioned here.

Part II: Poster

Prepare a poster-design with specified data and slogan in English/Hindi language, in three flat colours, on any one of the following five subjects. The designing of the poster should have balanced use of typography and illustration.

Size of the Poster-design: 1/2 imp size.

Note: Any five suitable subjects for poster design decided by the external and internal examiners jointly in accordance with the instructions and are mentioned here, strictly just before the start of the examination for Part II.

3. (A) Instructions to decide the subjects for illustration:

1. The examiners are to select/decide five suitable subjects.

2. Each subject should be given a specific situation, which is a main characteristic of an illustration.
3. Each subject should be so designed that the candidate may get a clear-cut idea of the subject and they can illustrate a specific situation based on given subject areas.
4. The examiners are free to decide the subjects but these should be according to the standard of the Class XII and environment of the school/candidates.

Some identified areas of the subjects for illustration are given below, in which some more areas may be added if needed.

Subject with a specific situation:

- (i) Family and friends in daily life.
- (ii) Professionals/professions.
- (iii) Games and sports.
- (iv) Nature.
- (v) National events and celebrations. :
- (vi) Religious events and festivals.
- (vii) Culture-Dance, Drama, Music and Art.

(B) Instructions to decide the subjects for Poster-design:

1. The examiners are to select/decide five subjects suitable for Poster-design.
2. Each subject should be given a specified data and slogan.
3. The data and slogan should be so framed/designed that the candidates may get a clear-cut idea of the subject.
4. The examiners must give the subjects data and slogan according to the standard of Class XII and environment of the School/candidates.

Some identified areas for poster-design are given below, in which some more areas/ subjects may be added.

1. For Advertisement on:

- (i) Excursion/Tourism
- (ii) Cultural activities.
- (iii) Community & Nature Development
- (iv) Ideas-Social, national and international.
- (v) Commercial products.

2. Instructions to the examiners:

1. Candidates should be given one hour break after first three hours.
2. Work of the candidates for Parts I, II & III is to be evaluated on the spot by the external and internal examiners jointly.
3. Each work of Parts I, II & III, after assessment, is to be marked as examined and signed by the external and internal examiners.

Some Reference Books Suggested for Teachers

1. Typolog-G.M. Rege, Bombay.
2. Kalatmak Lykhai, Published by D.A. V.P.
3. Figure Painting in Water Colour, Charles Reid Watson, Guptill Publication.
4. Walter T. Foster - Objective Drawing.
5. Walter T. Foster - Human Figure.
6. Walter T. Foster- Head Study.
7. Walter T. Foster - Animal Study.
8. Walter T. Foster - Landscape.
9. Applied Art Handbook - G.M. Rege, Bombay.

Some Reference Books for Theory portion of Painting, Graphics, Sculpture and Applied Art:

- | | |
|---------------------------------------|--|
| भारत की चित्रकला | राय कृष्णदास,
भारती भण्डार, लीडर प्रेस, इलाहाबाद (उ. प्र.) |
| 2. नवीन भारतीय चित्रकला शिक्षण पद्धति | प्रो. रामचन्द्र शुक्ल,
किताब महल प्रा. लि, इलाहाबाद (उ. प्र.) |
| 3. भारतीय चित्रांकन | डॉ. रामकुमार विश्वकर्मा,
बिशनलाल भार्गव एण्ड सन्स, कटरा, इलाहाबाद (उ. प्र.) |
| 4. भारतीय चित्रकला का इतिहास | डॉ. अविनाश बहादुर वर्मा,
प्रकाश बुक डिपो, बरेली (उ. प्र.) |
| 5. भारतीय कला और कलाकार | ई. कुमारिल स्वामी,
प्रकाशन विभाग, सूचना और प्रसारण मंत्रालय,
भारत सरकार, पटियाला हाउस, नई दिल्ली-110 001 |
| 6. भारतीय चित्रकला का बृहद इतिहास | वाचस्पति गैरोला,
चौखाम्मा संस्कृत प्रतिष्ठान, बंगलो रोड,
जवाहर नगर, दिल्ली. 100 007 |
| 7. रूपप्रद कला के मूलाधार | डॉ. शिवकुमार शर्मा एवं डा. रामावतार अग्रवाल,
लायल बुक डिपों, निकट गवर्नमेण्ट कालिज,
मेरठ (उ.प्र.) |
| 8. कला विलास (भारतीय कला का विकास) | डॉ आर. ए. अग्रवाल
लायल बुक डिपो, निकट गवर्नमेण्ट कालिज,
मेरठ (उ. प्र.) |
| 9. भारतीय चित्रकला | डॉ एस.एन. सक्सेना,
मनोरमा प्रकाशन, 299, मीरपुर कैण्ट,
कानपुर (उ. प्र.) 208004 |
| 10. भारतीय चित्रकला का विकास | डॉ. चिरंजीलाल झा,
लक्ष्मी कला कुटीर, नया गंज,
गाजियाबाद (उ. प्र.) 201001 |
| 11. कला के मूल तत्व | डॉ. चिरंजीलाल झा,
लक्ष्मी कला कुटीर, नया गंज,
गाजियाबाद (उ. प्र.) 201001 |
| 12. शिल्प कथा | नन्दलाल बसु,
साहित्य भवन लि., इलाहाबाद (उ. प्र.) |

13. भारत का मूर्तिशिल्प
डॉ. चार्ल्स एल, फाबरी, राजपाल एण्ड सन्स,
कश्मीरी गेट, दिल्ली- 110 006
14. कला और कलम
भारतीय चित्रकला का आलोचनात्मक इतिहास
डॉ. गिराज किशोर अग्रवाल,
ललिता कला प्रकाशन, 27-ए, साकेत कालोनी,
अलीगढ़ (उ. प्र.) 202001
15. भारतीय मूर्तिकला परिचय
-do-
16. आधुनिक भारतीय चित्रकला
-do-
17. भारत की चित्रकला का संक्षिप्त इतिहास
डॉ. लोकेशचन्द्र शर्मा
गोयल पब्लिशिंग हाउस,
सुभाष बाजार, मेरठ (उ. प्र.)
ललित कला आकादमी, रवीन्द्र भवन,
कॉपरनिक्स मार्ग, (निकट मण्डी हाउस),
नई दिल्ली 110 001 तथा
ल.क.अ. के क्षेत्रीय कार्यालयों पर भी उपलब्ध
18. रवि वर्मा, अमृता शेरगिल, रामाकिंकर
हुसैन, हेब्बर, यामिनी राय, देवी प्रसाद
राय चौधरी, पर निबध (पत्रिका) तथा समकालीन
भारतीय कला
डॉ. वासुदेव शरण अग्रवाल,
पृथ्वी प्रकाशन, वाराणसी (उ. प्र.) 221005
19. भारतीय कला
प्राबनाथ मागो, नेशनल बुक ट्रस्ट इंडिया, नई दिल्ली
20. भारत की समकालीन कला – एक परिप्रेक्ष्य
By Dr. Anis Farooqi
21. Hindustan Masavri
Dr. Vasudev Sharan Agrawal
22. The Heritage of Indian Art
Dr. Vasudev Sharan Agrawal,
Banaras Hindu University
Publication, Varanasi (U.P.)
23. Studies in Indian Art
Percy Brown, YMCA Publishing
House, Massey Hall, Jai Singh Road
(Near Parliament Street)
New Delhi-110001.
24. India Painting
A.K. Coomaraswamy,
Dover Publication, Inc., New York.
25. History of Indian and Indonesian Art
C Civaramamurti, Lalit Kala Academi,
New Delhi-I 10001.
26. South Indian Bronzer
Dr. Charles L. Fabri, Affiliated
East-West Press Pvt. Ltd.,
C-57, Defense Colony,
New Delhi-110024.
27. Discovering Indian Sculpture,
A Brief History

28. Story of Indian Art
S.K. Bhattacharya,
Atma Ram & Sons, Kashmiri Gate,
Delhi-I 10006.
29. Panorama of Indian Painting
Publication Division, Ministry of
Information and Broadcasting Government
of India, Patiala House, Tilak Marg,
New Delhi-11 0001.
(Also available at P. D. Sales Emporia
throughout the country).
30. Glory of Indian Miniature
Dr. Daljeet, Mahindra Publications,
R-5/II, New Raj Nagar, Ghaziabad,
Utttar Pradesh -201002. .
31. Indian Painting
C. Civaramamurti, National Book Trust, India
A-5, Green Park, New Delhi-110016
32. Indian Artists through the ages
R.K. Chopra, R.K.C. Publications
H-49, Raghu Nagar, Pankha Road,
New Delhi-II 0045.
33. Contemporary Indian Artists
Geeta Kapoor,
Vikas Publishing House, Darya Ganj,
Delhi - 110002
34. Monographs on Amar Nath Sehgal.
Amrita Shergil, Abanindra Nath Tagore,
D.P. Roy Chowdhury, Dhanaj Bhagat,
Gaganendra Nath Tagore, K.K. Hebbar,
Krishna Reddy, M.F. Husain, Rabindra Nath
Tagore, Jamini Roy, P.V. Janakiram,
Lalit Kala Contemporary
Lalit Kala Akademi,
Rabindra Bhawan, Copernicus Marg,
(New Mandi House),
New Delhi-II 000 1.
35. Monographs, Portfolios and prints of
contemporary/Modern paintings and
sculptures which are included in the
course of study.
National Gallery of Modern Art
(Deptt. of Culture, Ministry of H.R.D.
Govt. of India): Jaipur House,
Near India Gate, New Delhi-110003.
36. Portfolios, books and prints of Paintings
and sculptures which are included in the
course of study
National Museum
(Deptt. of Culture, Ministry of H.R.D.)
Govt. of India), Janpath,
New Delhi-1 10011

37. Contemporary Art in India-A Perspective

Prof. P.N. Mago

National Book Trust of India,

New Delhi-110016

38. History of Indian Painting
(Volume-I to V)

Krishna Chaitanya, Abhinav Publications,

Hauzkhas, New Delhi

31. MUSIC

(Code Nos. 31 to 36)

The syllabus in the subject has been published separately in Senior School Curriculum Volume III.

32. DANCE

(Code No. 56 to 62)

The syllabus in the subject has been published separately in Senior School Curriculum Volume III.

33. HERITAGE CRAFTS

(Code No. 070)

AIMS AND OBJECTIVES

To impart an all round and holistic education that equips the Indian youth of today to face challenges of a global and rapidly changing world, while preserving their own cultural assets, traditions and values this new subject area has been introduced for senior secondary level in schools with the following objectives :

- To understand the critical role of the crafts community and its integral relationship to the Indian society.
- To enable students to understand the relationship between economics, culture and aesthetics,
- To enable students to explore the linkages between environment, craft traditions and society through field studies,
- To develop a respect for the diversity of Indian craft traditions and to uphold the dignity of its practitioners by understanding the difficulties that they face,
- To introduce Indian culture through the crafts, so that school students appreciate the variety of skills and expressions of the Indian artist
- To provide students a creative aesthetic experience of the unique visual and material culture of India and develop values of conservation, protection of the environment, resources and heritage of the country,
- To enable students to understand the relationship between tradition and contemporary trends, form and function, creator and consumer.
- To understand the processes of creating a craft object from start to finish,
- To equip students with the tools to extend craft traditions to wider applications through applied crafts.

SYLLABUS DESIGN: HERITAGE CRAFTS

CLASS XI

I THEORY

One Theory Paper

70 Marks

3 Hours

SECTION A

40 Marks

50 Periods

Unit 1- Introduction to craft traditions

5 Periods

4 Marks

- a) Learning about crafts
- b) History of craft traditions

- c) Crafts and Society

Unit 2 - Crafts Materials

15 Periods

12 Marks

2.2 Clay

- a) Clay and Pottery
- b) Terra cotta
- c) Clay through the ages

2.3 Stone

- a) Carvings in stone
- b) Sculptures through ages
- c) Stone work
- d) Stone work and its use in contemporary architecture

2.4 Metal

- a) Metal work and blacksmith
- b) Lost wax process
- c) Bronze casting

Unit 3 - Crafts Process

20 Periods

16 Marks

3.5 Jewellery

- a) Jewellery for different parts of the body
- b) Regional varieties of jewellery- its process
- c) Jewellery through the ages

3.6 Natural Fibres

- a) Types of natural fibers
- b) Uses of natural fiber
- c) Bamboo and bamboo crafts process

3.7 Paper crafts

- a) Paper and paper crafts
- b) Paper toys
- c) Paper mache'

3.8 Textiles

- a) Textiles weaving

- b) Material for textiles
- c) Textiles technique
- d) Embroidery traditions in India

Unit IV - Composite Crafts

10 Periods

8 Marks

4.9 Painting

- a) Painting surfaces techniques and materials
- b) Mural Tradition through the ages
- c) Styles of paintings in different parts of India

4.10 Theatre Crafts

- a) Story telling
- b) Masks
- c) Musical instruments

SECTION B

20 Marks

Field Studies: Documenting/ Exploring crafts

- Anecdotal Experiential question
- Question Based on Case Study

SECTION C

10 Marks

Question based on the Craft chosen (Clay/ Stone/ Metal/ Jewelry/ Fiber/ Textile/ Painting/ Theatre/ Paper) for practice and innovation, on individual basis.

Note: Questions in sections B and C above will be based on the practical part of the syllabus. Thus, the time allocation has not been done separately

II. PRACTICAL

30 Marks

(a) Field studies: documenting/ exploring crafts

180 Periods

- Two short projects
- One long project

(b) Applied crafts

40 Periods

- Learning a craft
- Innovation in design and processes

CLASS XII

I THEORY

One Theory Paper **70 Marks** **3 Hours**

SECTION A **50 Periods**
40 Marks

Living Craft Traditions of India - Part II

Unit - I Overview of the past **15 Periods**
10 Marks

1. Crafts in the past
2. Colonial rule and crafts.
3. Gandhi and self sufficiency

Unit - II Crafts Revival **20 Periods**
15 Marks

4. Handloom and Handicraft revival
5. Crafts Community today
6. Production and marketing

Unit - III Crafts Revival **15 Periods**
15 Marks

7. Crafts Bazaars
8. Craft in the age of Tourism
9. Design and Development

SECTION B

Field Studies: Documenting/ Exploring crafts **20 Marks**

- Anecdotal Experiential question
- Question Based on Case Study

SECTION C **10 Marks**

Question based on the Craft chosen (Clay/ Stone/ Metal/ Jewelry/ Fibre/ Textile/ Painting/ Theatre/ Paper) for practice and innovation, on individual basis.

Note: Questions in sections B and C above will be based on the practical part of the syllabus. Thus time allocation has not been done separately.

II. PRACTICAL **30 Marks**

(a) Field studies: documenting/ exploring crafts **180 Periods**

- Two short projects

- One long project
- (b) **Applied Crafts** **40 Periods**
- Learning a craft
- Innovation in design and processes

(Guidelines for Section B and C as well as Practical has been provided in the Work Book: Exploring Craft Traditions of India, prepared by NCERT for classes XI & XII)

Section-wise Weightage: Class XI - XII

Areas of Learning	Marks
Theory	70
Section A (Reader)	40
Living Craft Traditions of India	
Section B	20
Field Studies	
Section C	10
A personal response question based on the Craft chosen (Clay/Stone/Metal/Jewelry/Fibre/Textile/Painting/Theatre/Paper)	
Practical	30
Field Studies: Exploring a Craft	10
Applied Crafts	20
- Learning a Craft	
- Innovation in design and processes	30
Total	100

Examination:

THEORY: One paper **3 hours** **70 Marks**

SECTION A **40 Marks**

1. Short questions:

Four questions out of five based on textbook (80-100 words).

Four questions of 3 marks each (4x3) 12 marks

2. Long questions:

Three questions out of four based on textbook (100-120 words)

Three questions of five marks each (3x5) 15 marks

3. Definitions:

Five definitions out of six based on textbook in three to five sentences. Five definitions one mark each (1x5) 05 marks

4. Essay Type:

One essay type question out of two based on textbook (150-200 words)

One essay type question of 8 marks. 08 marks

Section B

20 marks

5. A question based on the Field Study of the learner as part of his learning. Anecdotal documentation in a descriptive and narrative style. 10 marks

6. Comparison and contrast of two or more forms of craft based on a given case study. 10 marks

Section C

10 marks

A personal response question based on the Craft chosen (Clay/ Stone/ Metal/ Jewelry/ Fiber/ Textile/ Painting/ Theatre/ Paper)

PRACTICAL

3 hours

30 Marks

FIELD STUDIES: EXPLORING A CRAFT

10 marks

1. Field Studies Project Work

05 marks

In this part of the course students will be required to do two short and one **detailed** projects in each class XI and XII. These projects are essentially experiential and analytical in nature.

Each student will prepare:

Two short assignments (10 pages each)

Students in the first instance will study their immediate environment and learn about everyday crafts in their everyday lives. They will prepare an assignment of crafts found at home, in their town/village, artisans and crafts communities who live in their locality.

The teachers may discuss the areas and topics related with the topics mentioned in the following paragraph, before starting the work and they may call a craftsperson or someone from the community who feels comfortable talking to the children and at the same time is well versed with the craft traditions specially of that region. Students may talk to people both producers and consumers, find out about different aspects of production and marketing or study the architecture of monuments, visit museums, study the artifacts (sculpture and painting and crafts) and work on the costumes, jewelry, the way of life etc. The assignments can have drawings, illustrations, photographs, maps etc. The students may choose any **two topics** from following areas for this short project:

- **Crafts in their own locality/home/state** to enable students to understand the design and function of craft traditions in their daily life.

- **Local Heritage in Museum/ monuments/ religious-secular structures** to understand the various craft skills involved in historic architecture/building/sculpture/painting.
- **Vernacular architecture to study the variety of craft skills in contemporary building of homes, and other structures.**
- **Market/ shop/ mela/ haat to understand market forces.**

Note: Teacher to assess the two assignment out of 05 marks each and take the best out of the two for final assessment.

2. Exploring a Craft - Project Work

05 marks

One long term project on Exploring a Craft

This project will necessarily be a scientific, methodical documentation of a particular craft tradition prevalent in the region (for the first year that is class XI), which will have the following core issues in the background, which the students have also studied in theory;

- **Craft Traditions**
- **Philosophy and Aesthetics**
- **Materials, Processes and Techniques**
- **Environment & Resource Management**
- **Social Structures**
- **Economy and marketing**
- **International Examples**

The projects taken up for this subject may have different stages of planning, execution and presentation. The projects may be taken up in a group of 4 to 6 students where they can work on a particular craft tradition. In class XI students may visit the crafts-persons in their own region whereas in class XII students may take up crafts clusters of another region if the schools and the students find it convenient.

In the preparatory stage, students along with teachers can discuss about various crafts traditions practiced in the region, their history, distribution etc., collect all information available through various sources including library, internet and resource persons. To avail comprehensive data on various aspects of the crafts, students may develop an interview schedule and decide on number of crafts persons to be interviewed, which all places they will be visiting etc. Teachers must equip the students on interaction with craftspersons and other people from the community, type of language they should use, how to be polite with them and while handling their materials etc. Students can buy some of the objects from craftspersons, take photographs films after seeking their permission, make drawings, etc. which later on they can use in presentation or submission of project report.

After the completion of documentation, students could make presentation at school assembly or the class or in parent- teachers' meeting for which they can creatively use.

APPLIED CRAFTS

20 marks

This component will consist of a hands-on experience of creative work with a multi-disciplinary approach:

1. Learning a Craft

10 marks

Students can learn the basics of a chosen craft from a practicing local artisan, such as pottery/weaving/drawing and work on its techniques, handling of materials and tools, experiment with colour, form, texture, rhythm, balance etc. They can then experiment with them, know about the traditional practices in that craft, the symbolism in them and the different points of views associated with it. The schools should have all the facilities required for practicing all the processes involved in a craft including working space, materials and tools. Schools may not have a teacher who is also an expert in all these crafts and in such a case, the schools should identify resource persons/craftspersons from the community, who can come to the school for demonstrations and students also can visit them.

Help can be sought from TRIFED, SPIC-MACY, CCRT and other such organizations which are trying to retain the cultural fabric of Indian Society.

2. Innovation in design and processes

10 marks

In this stage, students will develop their creative, innovation skills. They will choose one development topic and translate theory into practice.

Eg Based on the interest and regional needs, like stone craft in parts of M.P., Tamil Nadu, Orissa, etc. where stone is easily available.

- Materials, Processes and Techniques

Experiment with eco-friendly packaging of different crafts,

- Environment & Resource Management

Recycling of materials,

Reducing hazards,

- Economy and marketing

Assisting a crafts person in proper methods of costing and pricing,

Studying consumer needs/ behavior and informing crafts person of changing trends etc.

- International Examples

Creative contemporary uses of the craft in India and abroad

- Creating an aesthetic environment

Finally it is critical that students who undertake this course have an opportunity to use what they learn to enhance their daily life. Students will be asked to practically demonstrate how they will create an aesthetic environment at school, home, and community. They can redesign their classroom with crafts they have studied; they can design a notice board for the school, or decorate the principal's office. Periodically students can display and organize

exhibitions to show the works and obtain feedback. Students can learn how their products can be creatively used in their lives as well as community members.

Textbook

In this subject area of Indian Crafts, there will be **three textbooks for classes XI and class XII**. One textbook each in both the years will be for theory, and one book giving guidelines/ addressing the schools, teachers and students about the practical components.

The theory textbooks for classes XI and XII will be a fully illustrated textbook giving photographs, sketches, maps, timelines, case studies etc. The class XI textbook of theory will introduce children with diverse traditions of the Indian crafts. Whereas the **class XII** textbook will address the six aspects of Craft Traditions: a. Philosophy and Aesthetics, b. Materials, Processes and Techniques, c. Environment & Resource Management d. Social Structures f. Economy and marketing g. International Examples. These aspects will be studied in light of the crafts traditions referred in class XI.

A work book which will be addressing the students as well as teachers and schools for conducting different activities in practicum, like the field studies and applied crafts will provide some samples of documentation methods/ formats based on which children can develop their own formats to conduct them. This will be a book for both years. It will also suggest what facilities the schools should provide for conducting these activities etc.

Teacher qualifications:

- A. A Post Graduate in any Art Form *Masters in Fine Arts (MFA) or Masters in Drawing or Painting*
An exposure to at least one Craft even if it is in an unorganised sector.
- B. In case a teacher does not have 1.1 above an undertaking should be taken so that at least 10 day training is done with the CCRT or Sanskriti or Crafts Museum or NCERT etc.

Infrastructure:

Basic space and kiln etc, potter wheel and other equipments required for the specific craft being offered.

Recommended Text books:

1. Reader: Living Craft Traditions of India, Part 1- Textbook for Class XI
(Published by NCERT)
2. Reader: Living Craft Traditions of India, Part 2- Textbook for Class XII
(Published by NCERT)

34. GRAPHIC DESIGN (Code No. 071)

INTRODUCTION

Graphic design is the creative planning and execution of visual communication. One learns to create a combination of shapes and forms, words and images, in order to reproduce them in some flat medium (two dimensional - paper, cardboard, cloth, plastic, video, computer, or projection screen, on poster, billboard, or other signage) or in a three-dimensional form (fabricated or manufactured) in order to convey information to a targeted audience. All graphic design has a purpose or function. Usually its purpose is commercial to explain aesthetically something - to express, inform and influence the thoughts and actions of its audience.

This subject introduces the student to art intended to communicate information and advertising. The focus is on studying and using layout and design concepts used in the graphic design field. The students will employ both analog media (drawing with pencil and paper, etc.) and digital media - using up-to-date computer tools (graphics hardware and software - for drawing, painting, layout, typography, scanning, and photography).

1. **Creating Art:** Students know and apply the arts, disciplines, techniques and processes to communicate in original or interpretive work.
2. **Art in Context:** Students demonstrate how elements of time and place influence the visual characteristics, content, purpose and message of works of art.
3. **Art as Inquiry:** Students demonstrate how the arts reveal universal concepts and themes. Students reflect upon and assess the characteristics and merits of their work and the work of others.

Graphic Design at senior secondary stage is an elective subject. Although there are no prerequisite qualifications for the subject the students should demonstrate basic skill and interest in the fields of art and design to opt this subject.

RATIONALE

Design is the process of selection where visual elements such as print, line, shape, volume, tone, texture, colour, form, format, space, and structure are used by students to express their ideas. Visual sensitivity and working knowledge of design elements would be developed by solving a series of problems and employing a variety of media and materials. The curricular area aims at enabling the students to develop their mental faculties of observation, imagination, and creation and develop skills and sensitivity towards the use of visual elements for an effective visual communication.

Design is an activity of problem solving for the well being of society and individuals. Today, in the world of information and communication every one has to communicate and get communicated by different groups of people through a wide variety of communication systems.

Graphic design course have great potential in providing creative solutions to communication of complex phenomena of print media such as books, magazines and newspaper, known as pictographic depictions or concept visualization. It can be traditionally applied in typography, cartooning (social, political and educational), and designing poster, book-covers, letters heads, news papers, brochure, logo, textile

prints, or even jewellery. Since the advent of personal computers and design software, graphic design is being utilized in electronic media-often referred to as interactive design which has unlimited applications in advertisements. The students can later become graphic designers working in print production (newsletters, posters, brochures, etc). Graphic designers combine text and images to communicate a message: sell a product or service, inform, or entertain.

The Graphic Design curriculum focuses on creating intelligent and powerful visual communication. Students build a strong foundation for a graphic design career by learning design techniques, visual thinking, concept development, colour, composition and typography through case studies and hands on exercises. During the study, assignments will incorporate problem solving projects that relate to visual communication. The course includes introduction to computer as a tool to create, modify and present the visual messages.

By opting Graphic Design as one of the Elective subjects at Senior Secondary level, the students will have various options to pursue their advanced studies in Graphic Design or the knowledge may be integrated with related curricular/ professional areas for their career.

COURSE OBJECTIVES

By studying Graphic Design students will have a wider horizon in the field of art and will -

- Demonstrate artistic growth by executing a variety of images/ text as images, traditional and contemporary techniques that solve complex design problems using creative thinking and analytical skills.
- Develop and demonstrate their understanding and skillful use of the elements and principles of visual design (1. conceptual element, 2. visual element, 3. relational element & 4. practical or functional element).
- Gain skill to use the digital tools as a powerful means of communication for creation, modification and presentation.
- Study the works of contemporary artists, designers as well as the masters in the field and discuss the enrich their vocabulary of design.
- Learn ways to apply aesthetic sensibilities into their works and explore ways to balance between formal theories with practical applications.

CORE CONTENT GOALS FOR GRAPHIC DESIGN

The students will learn:

- The history of graphic design.
- What a layout is and how to create an effective one.
- About lettering/ fonts and their implications.
- What a logo is and how to create one.
- The basics of two dimensional design including the elements and principles of art.
- About colour theory and its implications in Graphic Design.
- How to use art criticism effectively.

- About Graphic Design as a career.
- To improve their design skills and techniques using a variety of tools.

The students will design and create a variety of projects, both by hand and by using computer graphic design programs. They will maintain good studio organization and use of tools as expected by the teacher. They are expected to maintain facilities in an appropriate working condition.

CLASS XI: GRAPHIC DESIGN

A: THEORY	One Paper	3 Hours	70 marks	180 periods
UNIT - 1	Foundations of Graphic Design		20 marks	40 periods
UNIT - II	Graphic Design and Society		25 marks	70 periods
UNIT - III	Development of script		25 marks	70 periods
B: PRACTICAL			20 marks	60 periods
1.	Sketching and Drawing		10 Marks	
2.	Basic Design: Development of Aesthetic sensibility towards design		10 marks	
C: PORTFOLIO			10 marks	All year

CLASS XI: GRAPHIC DESIGN

A: THEORY	One Paper	3 Hours	70 marks
SECTION A:	Questions based on Reader		
SECTION B:	Questions based on Application of Design		
UNIT - 1: Foundations of Graphic Design	20 marks		
a. Introduction to Graphic Design			
b. Graphic Art, Design and Graphic Design			
c. Elements and Principles of Graphic Design			
UNIT - II: Graphic Design and Society	25 marks		
a. Indigenous Design and Culture			
b. Indigenous Graphic Design Practices			
UNIT - III: Graphic Communication Techniques	25 marks		
a. Development of script			
b. Evolution in Reprography			
c. Movable Metal Type to Digital Imaging			

B: PRACTICAL	20 marks
1. Sketching and Drawing <ul style="list-style-type: none"> a. Sketching of natural and man-made objects and environment b. Construction Drawing c. Representational Drawing d. Simplification Drawing 2. Basic Design : Development of Aesthetic sensibility towards design <ul style="list-style-type: none"> a) 2-Dimensional Elements of Design <ul style="list-style-type: none"> i) Line ii) Shape iii) Form iv) Colours v) Repetition vi) Structure vii) Similarity viii) Gradation ix) Radiation x) Irregularity xi) Contrast xii) Concentration xiii) Texture xiv) Space 	10 marks
<ul style="list-style-type: none"> b) Calligraphy and Typography <ul style="list-style-type: none"> i) Anatomy ii) Type Families iii) Choosing a Font iv) Styling and Formatting v) Text as Image 	10 marks
C: PORTFOLIO	10 marks
1. Sketching and Drawing	

- One complete sketchbook of 100 sketches	
2. Two - Dimensional Elements of Design 2 monogram designs a) 1 invitation card and 1 letter head b) 2 posters on given subjects c) 2 signage on given subject d) 2 interpretive design based on traditional motif (in two different mediums).	
3. Calligraphy and Typography a) 1 quotation in any chosen Typeface in any language. b) 1 slogan in any chosen Typeface in any language. c) (i) 1 design of the initials of ones name created in reverse of letter in a manner fit for printing. (ii) Produce the same design in relief printing.	
4. Project :- 1 project based on a visit	

CLASS XII: GRAPHIC DESIGN

A: THEORY	One Paper	3 Hours	70 marks	180 periods
UNIT - I Design Practices and Processes			15 marks	30 periods
UNIT - II Principles and Elements of Design			30 marks	100 periods
UNIT - III Media and Design			25 Marks	50 Periods
B: PRACTICAL			20 marks	60 Periods
1. Society and Articulation			5 Marks	15 Periods
2. Introduction to Design Based Software			5 Marks	15 Periods
3. Application of Design Based Software			5 Marks	15 Periods
4. Advanced Applications of Design Software			5 Marks	15 Periods
C: PORTFOLIO			10 marks	All year

CLASS XII: GRAPHIC DESIGN

A: THEORY	One Paper	3 Hours	70 Marks
SECTION A: Questions based on Reader			
SECTION B: Questions based on Application of Design			
UNIT - I Design Practices and Processes			15 Marks
1.1 Design in practices/ Role of Design in Society			
<ul style="list-style-type: none"> a) Functions of Design b) Implications and Impact of Graphic Design c) Role of Graphic Designer d) Contemporary Graphic Design in India 			
1.2 Design Processes			
<ul style="list-style-type: none"> a) Methodology of Graphic Design 			
UNIT - II Principles and Elements of Design			30 Marks
2.1 Sketching & Drawing			
<ul style="list-style-type: none"> a) Introduction : Drawing : an aid in visual representation b) Virtues of drawing c) Types of drawing <ul style="list-style-type: none"> • Drawing from seeing/ observation • Drawing from memory and imagination • Drawing from technical information 			
2.2 Colour			
<ul style="list-style-type: none"> a) Scientific theories of colours b) Artists' theories & colour schemes c) Colour Interaction d) Colour and expression e) Colour symbolism 			
2.3 Basics of Visual Composition/ Design Principles			
<ul style="list-style-type: none"> a) Introduction b) Composition in Different Art Forms c) Primary Constituents 			

d) Principles of Visual Composition	
2.4 Typography a) Anatomy of Typeface b) Expressive Typography c) Advanced Applications	
2.5 Principles of layout Design a) Theme and content b) Types of Layout c) Composition d) Symbolism of Colour e) Copy and Type/ typography	
UNIT - III Media and Design	25 Marks
3.1 Advertising Design a) Introduction to Media- Electronic and Print b) Campaign Design c) Event, Publicity and Public Relations	
3.2 Digital Imaging/ Painting and Printing a) Making Digital Images b) Modifying Digital Images c) Introduction to different types of image - editing software d) Working on layers and its advantages e) Advanced methods of making selection f) Using textures g) Adding text to images h) Difference between digital printing and conventional printing i) Application of digital printing	
3.3 Graphic design for Interactive Media a) Understanding a website b) Types of websites c) Designing for the Web d) Information ./Contend Design	

6	Two questions out of three on designing a motif or a pattern based on (5+5)	10 marks
7	One question out of two on designing any of the following types (brochure/ logo/ letterhead/ book cover/ poster/ textile print/ jewellery)	08 marks
II	PRACTICAL EXAMINATION : 3 HOURS	20 marks
	Course as prescribed in syllabus	
III	Portfolio:	
	One sketch book of at least 150 sketches.	10 marks

PORTFOLIO AND PROJECT WORK

1. Portfolio

One work based on each chapter of unit-II

- Drawing
- Colour
- Design Principles
- Typography
- Layout.

2. Project work

- (a) Field study and report writing documentation : Museums, Festivals etc.
- (b) Digital Work : Creating a theme based design on the field study in 5 different advertisement media using designed software.

Work Study: Study of works of any great/ known designer (national or international).

(Students will work individually on their assignments most of the time, but they will have the opportunity at times to work together to solve problems if the situation arises. It is essential that students should work on their projects during their designated class periods. Students are expected to have a certain number of assignments done by midterms or end of the quarter in order to receive grade/ marks. Students are evaluated according to how well they meet the criteria of creativity, accuracy, execution etc.)

3. Sketching : 150 sketches of people, place, architecture, objects etc. in different drawing mediums.

Note:

Yearly submission of portfolio consisting of selected works (min. no 20) produced during the year. The works should be rich in terms of material exploration and visual impact.

(Students will each develop a portfolio that reflects and intermediate to advanced level of artistic perception, expression, historic and cultural understanding, aesthetic valuing, and an ability to connect their artistic skills to many art related careers, and develop competencies in problem solving, communication, time management and resources. Students are expected to submit acceptable work at the end of academic year. If an assignment is considered unacceptable, the students will be asked to complete and resubmit their work.

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