Revised Curricula and Syllabi

for

Higher Secondary Final Year

SCIENCE STREAM

2018

(To be effective from 2018-2019 Academic Session)

ASSAM HIGHER SECONDARY EDUCATION COUNCIL

Bamunimaidam : Guwahati - 21

Revised Syllabi for Higher Secondary Course for Final year class (Effective from 2018-2019 academic session respectively)

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PREFACE

For the students of +2 stage in the state, the Assam Higher Secondary Education Council has taken the responsibility to promote quality education, through a suitable academic atmosphere. The quality education comes from the effective learning process which is based on the curriculum, syllabus and the textbooks. Hence, the revision of Curriculum, Syllabi and Textbook is a continuous and time demanding process to keep the learners well acquaint with the rapid development in different areas.

Keeping conformity with the National Curriculum Framework, 2005(NCF-2005), the Assam Higher Secondary Education Council has taken up the task of updating and revision of the Syllabus and textbooks of all subjects of different academic streams in phased manner. Initially, to maintain the uniformity with the national standard and with a view to provide a wide platform to our learners, the Council has adopted 14(fourteen) subjects from NCERT and it has already been implemented from the academic session 2010-2011. In addition to it, the Council has developed syllabus and textbooks on Education, Logic & Philosophy, Home Science and some of the MIL subjects on the basis of NCF-2005.

Presently, Council has introduced two new subjects, viz, IT/ITes and Retail Trade for all students as elective subjects. For the students of Arts Stream, these has been included ''Advance Sanskrit'' as an advance language subject.

Moreover, to develop cultural performance among students council has developed syllabus of Music, which includes various wings of musical instruments, dance as well as Folk dance and Folk music.

It is expected that the teachers and students will derive maximum benefit and enrich qualities by interacting with the revised Curricula and Syllabi.

Suggestions from concerned bodies and persons will be highly appreciated for further improvement in the succeeding years.

Date : 16-08-2018

Secretary
Assam Higher Secondary Education Council
Bamunimaidam, Guwahati-21

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ASSAM HIGHER SECONDARY EDUCATION COUNCIL

BAMUNIMAIDAM, GUWAHATI-21

Revised curriculum for +2 stage

(to be effective from 2018-2019 Academic session)

A. CORE SUBJECTS :

1. A Student of the H.S Programme of the Council shall have to offer subjects as specified hereunder:
   (i) **English :** 200 marks (with two papers of 100 marks each-100 marks in HS First Year Examination and 100 marks in HS Final Examination).
   (ii) **Modern Indian Language :** 200 marks (with two papers of 100 marks each-100 marks in the H.S. First Year Examination and 100 marks in the H.S. Final Examination).

   Note : A student may offer Alternative English in lieu of the MIL.

2. PATTERN OF EXAMINATION :

H.S. Final Examination :

1. English : one paper of 100 marks.
2. MIL/Alt. English : one paper of 100 marks.
3. (a) Elective subjects (three) : 100 marks each × 3 = 300 marks. (In case of subjects having practical parts 70 marks will be allocated to the Theory part and the rest 30 will be allocated to the practical part or the marks division of theory and practical part will be as indicated in the syllabus of concerned subject.)
   (i) The HS Final Examination will be held at the end of second year and shall be conducted by the Council at the centres of Examination recognized by the Council.
   (ii) The HS Final Examination will be conducted in February/ March every year.
   (iii) The results of the HS Final Examination will be determined on the basis of marks obtained in HS Final Examination only. (Performance of a student in the HS First year Examination shall not be taken into account while declaring the performance of the student in the HS Final Examination).

3. PASS MARKS :

(a) A student shall be declared pass only when he/she secures the minimum marks prescribed in each of the two core and three elective subjects. The pass marks shall be 30%of the total marks for subjects having no practical parts. For a subject having practical parts the minimum pass marks shall be 30% of the marks allocated to the theory part and 40% of the marks allocated in the practical part and a student must pass in the theory part and in the practical part separately. In the case of candidate offering four elective subjects, the

marks secured in three subjects where the candidate's performance is better shall be taken into account for determining pass, rank, division, distinction and star marks. The marks secured in the fourth elective subject (with poorest performance) will however, be shown in the marks-sheet. The marks secured in the fourth elective subject will not be taken into account for awarding rank, division, distinction (80% and above in a subject) and star (75% and above in aggregate). Conditions for award of division, distinction and star are given hereunder in clause (b), (c) and (d).

(b) A successful candidate obtaining 60% and above marks in aggregate will be placed in First Division. Those obtaining 45% and above but less than 60% marks in aggregate will be placed in Second Division. Other successful candidates obtaining less than 45% marks in aggregate will be placed in Third Division.

(c) If a successful candidate obtains 80% or more marks he/she will be declared to have secured 'DISTINCTION' in that subject.

(d) A candidate obtaining 75% or above of the total allotted marks (in two core and three elective subjects) will be declared to have secured 'STAR MARKS'.

4. (A) List of Modern Indian Language (MIL) Subjects:

Anyone of the following:-

(a) Assamese
(b) Bengali
(c) Bodo
(d) Hindi
(e) Nepali
(f) Urdu
(g) Khasi
(h) Garo
(i) Mizo
(j) Manipuri
(k) Hmar

A student may offer 'Alternative English' in lieu of an MIL subjects as a part of core subjects.

(B) List of Elective Subjects (SCIENCE STREAM) :

(i) Physics
(ii) Chemistry
(iii) Mathematics
(iv) Biology
(v) Geology or Geography
(vi) Statistics

(vii) Anthropology
(viii) Computer Science & Application
(ix) Home Science
(x) Economics
(xi) Logic & Philosophy
(xii) Engineering Drawing
(xiii) Multimedia & Web Technology
(xiv) Biotechnology
(xv) Entrepreneurship Development
(xvi) Sanskrit
(xvii) Retail Trade
(xviii) IT/ITes

Note : A student of Science stream who desires to go for Ayurvedic Course may offer 'Sanskrit' as the fourth elective subject with specific permission from the AHSEC on express recommendations of the Principal of the concerned institution. However, marks obtained in this subject (Sanskrit) will not be taken into account for the purpose of determination of pass, rank and division etc.

(C) List of Elective Subjects (ARTS STREAM) :

(i) Economics
(ii) History
(iii) Political Science
(iv) Logic & Philosophy or Psychology
(v) Education
(vi) Sociology or Anthropology
(vii) Statistics
(viii) Mathematics
(ix) Home Science
(x) (a) One of the following classical languages :
    (1) Arabic
    (2) Persian
    (3) Sanskrit

    OR

(b) One of the following advance languages :
    (1) Advance Assamese
    (2) Advance Bengali
    (3) Advance Hindi
    (4) Advance Manipuri
    (5) Advance Bodo
    (6) Advance Sanskrit

(xi) Geography
(xii) Computer Science & Application
(xiii) Sattriya Dance
(xiv) Fine Arts
(xv) Entrepreneurship Development
(xvi) Multimedia & Web Technology
(xvii) Retail Trade
(xviii) IT/ITes
(xix) Music

(D) List of Elective Subjects (COMMERCE STREAM) :

(a) Compulsory subjects–
  (i) Business Studies
  (ii) Accountancy
(b) Optional Electives subjects
  (i) Economics
  (ii) Salesmanship and Advertising
  (iii) Insurance
  (iv) Banking
  (v) Economic Geography
  (vi) Computer Science & Application
  (vii) Statistics.
  (viii) Commercial Mathematics and Statistics or Mathematics
  (ix) Entrepreneurship Development
  (x) Multimedia & Web Technology
  (xi) Retail Trade
  (xii) IT/ITes

Note : * Syllabus for Statistics, Mathematics, Economics, Computer Science & Application, Entrepreneurship Development, Multimedia & Web Technology of Commerce stream are same as those of Science and Arts Stream.

* It is desired that student of all streams shall choose their elective subjects keeping in view their future courses of higher studies in general and other professional courses in particular.

5. Every learner at the +2 stage would be required to participate compulsorily in an area of co-curricular activities (CCA) out of NCC, NSS, Rover/Ranger, Games and Sports (Any one from Athletic and other team games), cultural and literary, Debating and quiz.
6. A student must attend the minimum number of classes as specified under the Regulations to become eligible for admission into HS First Year or HS Final Year Examination as the case may be.
7. The Council desires that Unit Test be held regularly as indicated in the Academic calendar.

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ASSAMESE (MIL

SYLLABUS FOR HIGHER SECONDARY COURSE

অসমীয়া বিষয়ৰ পাঠ্যক্ৰম

ভাষা-শিক্ষাৰ উদ্দেশ্য ঃ

ভাষা মানৱ সভ্যতাৰ অপৰিহাৰ্য অংগ। সকলো মানুহে বিভিন্ন উদ্দেশ্যত ভাষা ব্যৱহাৰ কৰে। ভাষা হ'ল মানুহৰ মনৰ ভাব আদান-প্ৰদানৰ মাধ্যম। কেৱল আদান-প্ৰদানৰ মাধ্যমেই নহয়, ভাষা আয়ত্তৰ জৰিয়তে জ্ঞান আহৰণৰ পথো প্ৰশস্ত হৈ থাকে। জন্মৰ পিছৰ পৰা শিশুৱে ভাষা আয়ত্ত কৰে। শিক্ষাগত অৰ্হতা গ্ৰহণৰ বাবে বিদ্যালয়লৈ যোৱাৰ পিছৰে পৰা ভাষা শিক্ষাৰ বিশেষ দিশ উন্মোচিত হয়। সামাজিক প্ৰাণীৰূপে মানুহে ভাষা আয়ত্ত কৰে বিভিন্ন ক্ষেত্ৰত বিভিন্ন ধৰণে। ছাত্ৰ-ছাত্ৰীক ভাষা-শিক্ষা প্ৰদানৰ উদ্দেশ্য হৈছে বিভিন্ন পাঠৰ জৰিয়তে জীৱন আৰু জগত সম্পৰ্কে অৱগত কৰোৱা। ভাষা-শিক্ষা এক জটিল প্ৰক্ৰিয়া। উচ্চতৰ মাধ্যমিক স্তৰত ছাত্ৰ-ছাত্ৰীক ভাষা-শিক্ষা প্ৰদান কৰোতে বিভিন্ন পদ্ধতি আৰু কৌশল অৱলম্বন কৰিব লাগিব।

ভাষা-শিক্ষাৰ কৌশল ঃ

ভাষা শিক্ষাৰ ক্ষেত্ৰত কেইবাটাও কৌশল অৱলম্বন কৰা হয়। প্ৰধানভাৱে পঠন, লিখন, শ্ৰৱণ আৰু কথন— এইকেইটা কৌশল প্ৰধান। অৱশ্যে উচ্চতৰ মাধ্যমিক স্তৰত আন কেতবোৰ কৌশলৰ প্ৰতিও সজাগ হ'ব লাগিব। ইয়াৰ ভিতৰত কথোপকথনৰ কৌশল, উচ্চস্তৰীয় লিখন কৌশল, টোকা প্ৰস্তুত, সাৰাংশ প্ৰস্তুত, ব্যাকৰণ জ্ঞান আহৰণ আদি অন্যতম।

বিশেষ গুৰুত্ব দিবলগীয়া দিশ ঃ

উচ্চতৰ মাধ্যমিক শিক্ষাৰ স্তৰত পঠনৰ দিশত বিশেষ গুৰুত্ব দিয়া নহয় যদিও ইয়াৰ প্ৰয়োজন আছে। কাৰণ ব্যাকৰণৰ জ্ঞান আয়ত্ত কৰোতে অথবা সঠিক উচ্চাৰণৰ প্ৰতি লক্ষ্য ৰাখোতে পঠন অপৰিহাৰ্য। শ্ৰৱণ আৰু কথনৰ দিশতো গুৰুত্ব দিব লাগিব। ইয়াৰ লগে লগে অধিক গুৰুত্ব দিবলগীয়া বিষয়টো হ'ল লিখন। ব্যাকৰণৰ বিষয়বোৰ প্ৰস্তুত, পাঠ সম্বন্ধীয় প্ৰশ্নাৱলী প্ৰস্তুত, শ্ৰৱণ আৰু কথনৰ জৰিয়তে কথোপকথনৰ কৌশল আদি আয়ত্ত কৰাটো অতি আৱশ্যকীয়। ছাত্ৰ-ছাত্ৰীৰ (পাঠৰ) মৌখিক উপস্থাপন, সামূহিক পাৰস্পৰিক আলোচনা, পাঠৰ মূল বক্তব্যৰ প্ৰতি ছাত্ৰ-ছাত্ৰীৰ দৃষ্টি আকৰ্ষণ, টোকা সঠিকভাৱে প্ৰস্তুত, পাঠৰ লগত সংগতি থকা বিষয়ৰ অৱতাৰণা, ব্যাকৰণৰ জ্ঞান প্ৰদানৰ জৰিয়তে ভাষা-জ্ঞান বৃদ্ধি— এই বিষয়বোৰৰ প্ৰতি শিক্ষকে মনোনিবেশ কৰিব লাগিব। ৰচনা লিখন, পত্ৰ লিখন, সৃষ্টিধৰ্মী লিখন আদি বিষয়বোৰো ছাত্ৰ-ছাত্ৰীৰ ভাষা আহৰণৰ অন্যতম আহিলা। শিক্ষকে ছাত্ৰ-ছাত্ৰীক এই দিশত অনুশীলনৰ জৰিয়তে উপযুক্ত ভাবে গঢ় দিবলৈ সক্ষম হ'ব।

অসমীয়া (আধুনিক ভাৰতীয় ভাষা)

পটভূমি ঃ

একাদশ আৰু দ্বাদশ শ্ৰেণীৰ ছাত্ৰ-ছাত্ৰীক অসমীয়া সাহিত্যৰ নিৰ্বাচিত পাঠ অধ্যয়নৰ জৰিয়তে ঐতিহ্যমণ্ডিত অসমীয়া ভাষা সাহিত্য সম্পৰ্কে সম্যক জ্ঞান দিব বিচৰা হৈছে। এই উদ্দেশ্য আগত ৰাখিয়ে অসমীয়া সাহিত্যৰ প্ৰাচীন, মধ্য আৰু

আধুনিক যুগত ৰচিত নির্বাচিত লেখকৰ পাঠ পাঠ্যক্রমত অন্তর্ভুক্ত কৰা হৈছে। ছাত্র-ছাত্রীয়ে অসমীয়া ভাষা শুদ্ধ ৰূপত শিকিব/লিখিব পৰাত সহায়ক হ'ব বুলি বিবেচনা কৰি আৱশ্যকীয় ব্যাকৰণ পাঠ্যক্রমত অন্তর্ভুক্ত কৰা হৈছে। লগতে চৰকাৰী নির্দেশ মানি '**পৰিৱেশ** আৰু **দুর্যোগ ব্যৱস্থাপনা**' আৰু '**মূল্যবোধ-শিক্ষা** আৰু **কৈশোৰ শিক্ষা**' বিষয়ক চাৰিটা পাঠ অন্তর্ভুক্ত কৰা হৈছে।

উদ্দেশ্য ঃ

পাঠ্যক্রম যুগুত কৰোতে এই কথাকেইটালৈ দৃষ্টি ৰখা হৈছে ঃ

- ছাত্র-ছাত্রীয়ে পাঠ্যক্রমৰ অন্তর্ভুক্ত পাঠ যাতে সহজে আয়ত্ত কৰিব পাৰে।
- পাঠবোৰ যাতে ৰসাল হয়।
- পাঠ অধ্যয়নৰ ফলত ছাত্র-ছাত্রীৰ মনত যাতে জাতীয় সংস্কৃতি ঐতিহ্যৰ ভাব জাগ্রত হয়।
- ছাত্র-ছাত্রীয়ে নিজৰ ভাষাৰ উপৰি শ্রেণীকোঠাৰ বহুভাষিক বাস্তৱ পৰিস্থিতিৰ লগত খাপ খাব পৰা হোৱাকৈ পাঠ্যক্রম যুগুত কৰা।
- বিশ্লেষণাত্মক আৰু সৃষ্টিধর্মী দুয়োটা দিশতে গুৰুত্ব প্রদান কৰা।
- বিষয়বস্তু অনুসৰি ভাষাৰ স্তৰ যে বেলেগ তাৰ প্রতি দৃষ্টি দিয়া।
- লিখিত ভাষা যে ব্যাকৰণ, অভিধানৰ দ্বাৰা নিয়ন্ত্রিত সেই কথা জানিবৰ বাবে ব্যাকৰণ আৰু অভিধান চর্চা কৰিবলৈ উদ্‌গনি দিয়া।

ASSAMESE (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 100**

Unitwise Distribution of Marks & Periods :

Unit	Topics	Marks	Periods
Unit-I	Prose	35	60
Unit-II	Poetry	25	50
Unit-III	(A) Adolescence Education	10	30
	(B) Value Education		
Unit-IV	Grammar	20	35
Unit-V	Essay writing	10	25
	Total	**100**	**200**

পাঠ্যপুথি ঃ **সাহিত্য সৌৰভ**,

অসম উচ্চতৰ মাধ্যমিক শিক্ষা সংসদৰ দ্বাৰা প্রকাশিত।

UNITWISE DISTRIBUTION OF COURSE CONTENTS :

Unit-I ঃ (গোট-১) নির্বাচিত গদ্য ঃ **(Marks 35)** **(Periods 60)**

(ক) মোৰ মাতৃমুখ দর্শন ঃ লক্ষ্মীনাথ বেজবৰুৱা

(খ) মগনিয়াৰ (কথা কবিতা) ঃ যতীন্দ্র নাথ দুৱৰা

(গ) আনন্দৰাম বৰুৱা ঃ উপেন্দ্র চন্দ্র লেখাৰু
(ঘ) হস্তিবিদ্যার্ণৱ পুথি ঃ ড° সূর্যকুমাৰ ভূঞা
(ঙ) ভাৰতীয় আদর্শত বৈৰাগ্য ঃ তীর্থনাথ শর্মা
(চ) চিঠি (গল্প) ঃ শীলভদ্র
(ছ) অসমীয়া চলচ্চিত্রৰ গতিধাৰা ঃ উৎপল দত্ত
(জ) বৈজ্ঞানিক মানসিকতা কিদৰে গঢ়িব পাৰোঁ ঃ ড° দীনেশ চন্দ্র গোস্বামী

Unit-II ঃ (গোট-২) নির্বাচিত কবিতা ঃ (Marks 25) (Periods 50)

(ক) বৰগীত (উঠৰে উঠ বাপু) ঃ মাধৱদেৱ
(খ) বিশ্ব খনিকৰ ঃ মফিজুদ্দিন আহমদ হাজৰিকা
(গ) মিলন ঃ নলিনীবালা দেৱী
(ঘ) জনতাৰ আহ্বান ঃ জ্যোতিপ্রসাদ আগৱৱালা
(ঙ) কাঠমিস্ত্রীৰ ঘৰ ঃ ধীৰেন্দ্র চন্দ্র দত্ত
(চ) আঘোণৰ কুঁৱলী ঃ কেশৱ মহন্ত
(ছ) উভতি নহাৰ কবিতা ঃ নৱকান্ত বৰুৱা
(জ) কৰুণতম ঃ ড° নির্মলপ্রভা বৰদলৈ

Unit-III ঃ (গোট-৩) ঃ (Marks 10) (Periods 30)

(ক) মূল্যবোধ শিক্ষা ঃ ড° দুলুমণি গোস্বামী
(খ) কৈশোৰ কাল আৰু ইয়াৰ উপযোগী শিক্ষা ঃ ড° স্বর্ণলতা দাস

Unit-IV ঃ (গোট-৪) Grammar : (Marks 20) (Periods 35)

অসমীয়া ভাষাৰ ব্যাকৰণ ঃ

বিভক্তি ঃ ক্রিয়া বিভক্তি আৰু নাম বিভক্তি, **প্রত্যয় ঃ** কৃৎ প্রত্যয়, তদ্ধিৎ প্রত্যয়, জতুৱা ঠাঁচ।

Unit-V ঃ (গোট-৫) ৰচনা ঃ (Marks 10) (Periods 25)

ৰচনাৰ বাবে বিষয় ঃ

(ক) সাহিত্য-সংস্কৃতি সম্পর্কীয়,
(খ) বিজ্ঞান আৰু প্রযুক্তিবিদ্যা সম্পর্কীয়,
(গ) সামাজিক আৰু প্রাকৃতিক পৰিৱেশ সম্পর্কীয়,
(ঘ) কৃষি আৰু অর্থনীতি সম্পর্কীয়,
(ঙ) ক্রীড়া সম্পর্কীয়,
(চ) ভ্রমণ সম্পর্কীয়।

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BENGALI (MIL)

SYLLABUS FOR HIGHER SECONDARY COURSE

ভূমিকা ঃ

উচ্চতর মাধ্যমিক স্তর হল বৃহত্তর কর্মক্ষেত্রে প্রবেশের দ্বার স্বরূপ। একাদশ ও দ্বাদশ শ্রেণির বাংলাভাষার পাঠ্যসূচিতে ছাত্র-ছাত্রীদের সাহিত্যের নির্বাচিত পাঠ অধ্যয়নের মাধ্যমে ঐতিহ্যমণ্ডিত বাংলাভাষা ও সাহিত্যের সম্যক পরিচয় দেবার জন্য প্রাচীন-মধ্য ও আধুনিক যুগের কবি সাহিত্যিকদের জীবনী ও তাঁদের রচনা অন্তর্ভুক্ত করা হয়েছে।

সাহিত্য জীবনেরই ছবি এবং জীবনকে অতিক্রম করে যেহেতু কোনো মানবিক অভিজ্ঞতা সম্ভব নয় তাই সাহিত্যপাঠ ব্যতীত ছাত্র-ছাত্রীদের সুস্থ মানসিকতা গঠন সম্ভব নয়। প্রণালীবদ্ধভাবে পঠন, শ্রবণ, কথন ও লিখনের ব্যবহার ও চর্চার দিকে নজর রেখে নির্বাচিত ব্যাকরণের অংশে সৃষ্টিধর্মী লিখন ও সৃজনশীল লিখন ইত্যাদি বিষয়ে একটি সুস্পষ্ট নিয়ম অনুসরণ করে পাঠ্যসূচি তৈরি করা হয়েছে।

রাষ্ট্রীয় পাঠক্রম সংস্থার নির্দেশানুযায়ী পাঠনির্বাচনে কলা ও সংস্কৃতি, সামাজিক ও মানবিক মূল্যবোধ, পরিবেশ, জাতীয়তাবোধ ও কিশোরমনের উপযোগী পাঠ সন্নিবিষ্ট করা হয়েছে। পাঠ্যসূচি তৈরি করতে গিয়ে বিশেষভাবে নিম্নলিখিত বিষয়ের দিকে লক্ষ রাখা হয়েছে ঃ

- ভাষা আয়ত্ত করে ব্যবহারিক জীবনে শুদ্ধ উচ্চারণ ও প্রয়োগ।
- সাহিত্য পাঠের মাধ্যমে বিভিন্নযুগের সঙ্গে পরিচয় ঘটানো।
- ছাত্র-ছাত্রীরা যেন কেবল মুখস্থ বিদ্যার উপর নির্ভরশীল না হয়ে ব্যবহারিক জীবনেও ভাষা প্রয়োগের ক্ষেত্রে উপযুক্ত হয়ে উঠতে পারে সেদিকে লক্ষ রেখে ব্যাকরণের ওপর জোর দেওয়া হয়েছে।
- মানসিক উৎকর্ষ ও কল্পনাশক্তির বিকাশ সাধন।
- ভবিষ্যতে ভাষা ও সাহিত্য বিষয়ে চর্চা করতে আগ্রহ সৃষ্টি করা।

BENGALI MIL

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unit wise distribution of Marks and Periods

Unit No.	Title	Marks	Periods
Unit I :	Poetry	25	50
Unit II :	Prose	35	60
Unit III :	(A) Adolescence Education	10	30
	(B) Value Education		
Unit IV :	Grammar	20	35
Unit V :	Essay writing and composition	10	25
	Total	**100**	**200**

পাঠ্যপুথি ঃ বাংলা সাহিত্য চয়নিকা

অসম উচ্চতর মাধ্যমিক শিক্ষা-সংসদের দ্বারা প্রকাশিত

Unitwise distribution of course contents :

Unit - I (Poetry) পদ্যাংশ ঃ **Marks : 25** **Periods : 50**

(ক) অভিসারের পূর্ব -প্রস্তুতি ঃ গোবিন্দদাস
(খ) অন্নদার আত্মপরিচয় ঃ ভারতচন্দ্র রায়গুণাকর
(গ) বঙ্গভাষা ঃ মাইকেল মধুসূদন দত্ত
(ঘ) মাতৃহৃদয় ঃ প্রিয়ংবদা দেবী
(ঙ) কৃপণ ঃ রবীন্দ্রনাথ ঠাকুর
(চ) কুলিমজুর ঃ কাজী নজরুল ইসলাম
(ছ) পূব-পশ্চিম ঃ অচিন্ত্যকুমাৰ সেনগুপ্ত
(জ) খরা ঃ শঙ্খ ঘোষ

Unit - II (Prose) নির্বাচিত গদ্যাংশ ঃ **Marks : 35** **Periods : 60**

(ক) ফুলের বিবাহ ঃ বঙ্কিমচন্দ্র চট্টোপাধ্যায়
(খ) স্বাদেশিকতা ঃ রবীন্দ্রনাথ ঠাকুর
(গ) আমার জীবনস্মৃতি ঃ লক্ষ্মীনাথ বেজবরুয়
(ঘ) মন্ত্রের সাধন ঃ জগদীশচন্দ্র বসু
(ঙ) মাস্টারমহাশয় ঃ প্রভাতকুমার মুখোপাধ্যায়
(চ) দিবসের শেষে ঃ জগদীশ গুপ্ত
(ছ) গণেশ জননী ঃ বনফুল
(জ) ভাত ঃ মহাশ্বেতা দেবী

Unit III **Marks : 10** **Periods : 30**

(ক) মূল্যবোধ শিক্ষা ঃ ড° সুজিত বর্ধন
(খ) কৈশোর কাল ও উপযোগী শিক্ষাঃ ড° কাবেরী সাহা

Unit -IV (Grammar) ব্যাকরণ ঃ **Marks : 20** **Periods : 35**

(ক) প্রবাদ- প্রবচন (খ) বাগ্বিধি- বাগ্‌ধারা
(গ) প্রতিশব্দ (ঘ) সমাস

Unit - V (Essay and composition) রচনা ও সৃষ্টিধর্মী লিখন ঃ **Marks : 10** **Periods : 25**

(ক) রচনা ঃ

(১) অসম বিষয়ক, (২) সাহিত্য সংস্কৃতি বিষয়ক,
(৩) বিজ্ঞান ও প্রযুক্তিবিদ্যা বিষয়ক (৪) ক্রীড়া বিষয়ক,
(৫) সামাজিক ও প্রাকৃতিক পরিবেশ বিষয়ক (৬) ভ্রমণ বিষয়ক,
(৭) সাম্প্রতিক সমস্যামূলক (৮) জীবনী বিষয়ক

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BODO (MIL)

SYLLABUS FOR HIGHER SECONDARY COURSE

बर' आयदानि फराफारि

राव सोलोंनायनि थांखि :

रावआ सुबुं सोदोमस्रिनि गारनो हायि बाहागो। गासैबो मानसिआ बायदि थांखियाव राव बाहायो। रावआ जादों मानसिफोरनि गोसोनि सानना य हनायखौ फोरमायलायनायनि बिजों। खालि फोरमायलायनायनि बिजोंल' नङा, राव रोंनायनि गेजेरजों गियान बुथुमनायनि लामायाबो जेंना गैयि जायो। जोनोमनि उननिफ्राय गथ'आ राव सोलोङे। सोलोंथाइयारि हारोंथाइ मोननो थाखाय फरायसालिसिम थांनायनि उननिफ्रायनो राव सोलोंनायनि जरखा बिथिं बेरखाङे। समाजारि जिब महरै मानसिआ राव सोलोङे बायदि थिलियाव बायदि रोखोमै। फरायसा-फोरखौ राव फोरोंनायनि थांखिआ जाबाय बायदि फरानि गेजेरजों जिउ-आरो मुलुगनि सोमोन्दै मिथिहोनाय। राव सोंलोंनाया मोनसे गोख्रों फारिखान्थि। गोजौसिन गेजेरारि थाखोआव फरायसा-फोरखौ राव फोरोंनायाव बायदि आदब आरो खान्थि बाहायनांगौ।

राव सोलोंनायनि आदब :

राव सोलोंनायनि बेलायाव गोबां आदब बाहायनाय जायो। गाहायै फरायनाय, लिरनाय, खोनासंनाय आरो बुंनाय। अदेबानि गोजौसिन गेजेरारि थाखोआव गुबुन माखासे आदबनि फारसेबो गोसो होनांगौ। बेनि गेजेराव रायलायनायनि आदब, जौगा थाखोनि लिरनायनि आदब, फोरमायथि लिरनाय, सार बाहागो लिरनाय, रावखान्थिनि गियान बुथुमनाय बायदिआनो गाहाइ।

जर'खा गोसो होनो गोनां बिथिं :

गोजौसिन गेजेरारि सोलोंथाइनि थाखोआव महरारि बिथिङाव गोसो होनाय जायाब्लाबो बेनिबो गोनांथि दं। मानोना रावखान्थिनि गियान बुथुमनायाव एबा थार रिंसारनायनि फारसे गोसो होनायाव महरखौ गोनांथार। खोनासंनाय आरो बुंनायनि बिथिङावबो गोसो होनांगोन। बेजों लोगोसे गोसो होनो गोनांसिना जादों लिरनाया। रावखान्थिनि फराफोर जथायनाय, फरानि सोंथिफोर बानायनाय, खोनासंनाय आरो बुंनायनि गेजेरजों रायलायनायनि गोनांथार। फरायसाफोरआ फरानि खौमोन होनाय, जयै सावरायनाय, फरानि गुबै खोथानि फारसे फरायसाफोरखौ गोसो बोहोनाय, फोरमायथि बानायनाय, फराजों सोमोन्दो थानाय आयदा रायखांनाय, रावखान्थिनि गियान होनानै रावनि गियान बांहोनाय- बेफोर आयदाफोरनि फारसे फोरोंगिरिया गोसो होनांगोन। रनसाय लिरनाय, लाइजाम लिरनाय, सोरजिथायारि लिरनाय बायदि आयदाफोराबो फरायसाफोरनि राव रोंनायनि मख'जाथाव आयजें। फोरोंगिरिया फरायसाफोरखौ बे बिथिङाव उन सोलोंथिनि हेफाजाबै मोजाङै गायसननो हागोन।

बर' (गोदान भारतारि राव)

बिथा :

जिसे आरो जिनै थाखोनि फरायसाफोरखौ बर' थुनलाइनि सायख'जानाय फरा फरायहोनायनि हेफाजाबै बर' थुनलाइनि सोमोन्दै गियान होनो नाजानाय जादों। बे थांखिखौ सिगाङाव लानानै बर' थुनलाइनि गोजाम, गेजेर आरो गोदान मुगायाव लिरनाय माखासे लिरगिरिफोरनि लिरथाइखौ फराफारियाव सोनाय जादों। फरायसफोरआ बर' रावखौ गेबेङै सोलोंनो/ लिरनो हानायाव

हेफाजाब होगोन होनना सानना नांनायबादियै रावखान्थिनि आयदाबो फराफारियाव थिस'ननाय जादों। लोगोसेनो सोरखारनि बिथोन बादियै 'आबहावा आरो खैफोद राहा' आरो 'बेसेनथियारि सोलोंथाइ आरो सेंग्रासा सोलोंथाइ'नि सायाव मोनब्रै फरा सोनाय जादों।

थांखि :

फराफारि बानायनायाव बे खोथाफोरखौ गोसोआव लानाय जादो :

- फरायसाफोरा फराफारिनि फराफोरखौ जाहाथे गोरलैयै बुजिनो हायो।
- फराफोरा जाहाथे बिदै गोनां जायो।
- फराखौ फरायनायनि गेजेरजों फरायसाफोरनि गोसोआव जाहाथे हारिमायारि हारिमुनिफारसे सांग्रां जायो।
- बिजिरथायारि आरो सोरजिलु मोननैबो बिथिङाव गोसो होनाय जादों।
- आयदा लाना रावनि थाखोआदि जुदा जायो बेखौ गोसो होनाय जादों।
- लिरनाय रावादि रावखान्थि, सोदोब बिहुंजों दैदेनजानाय बे खोथाखौ मिथिहोनो थाखाय रावखान्थि आरो सोदोब बिहुं बाहायनो थाखाय थुलुंगा होनाय।

BODO (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One paper **Time : Three hours** **Marks - 100**

Unitwise Distribution of marks and periods

Unit No.	Topics	Marks	Periods
Unit-I	Prose	30	60
Unit-II	Poetry	25	50
Unit-III	(a) Adolesence Education	10	30
	(b) Value Education		
Unit-IV	Grammar	20	35
Unit-V	Essay writing	15	25
		100	**200**

Unitwise Distribution of course contents

Unit-I (खोन्दो-1) : Prose (रायथाइ) - Marks-30

Text book : Sujunai Bijab : Edited by - Editorial Board (AHSEC)

फरा बिजाब : **सुजुनाय बिजाब** - सुजुगिरि : सुजु आफाद

(आसाम गोजौसिन गेजेरारि सोलोंथाइ ग'थुम)

1.	एण्डेल मुगानि बर' थुनलाइ	– बिहुराम बर'
2.	आलारि दामब्रा	– खुगा सल'
3.	गोनोखोआरि गोसो माबोरै दानो हायो	– ड° दीनेश ग'स्वामी राव सोलायगिरि : बिरुपाक्ष गिरि बसुमातारी
4.	बुथुवा थुंग्रि	– नीलकमल ब्रह्म
5.	बर' राव थुनलाइयाव प्रम'द चन्द्र ब्रह्मनि बिहोमा	– मंगलसिं हाज'वारी
6.	जारिमिन आरो बर' माहारि	– कामेश्वर ब्रह्म
7.	कासारनि हरिटिकर	– म'हिनी म'हन ब्रह्म
8.	खेराइ मोसानायाव फावथिना नायबिजिरनाय	– धिरेश्वर बर' नार्जी

Unit-II (खोन्दो-2) : Poetry (खन्थाइ) - Marks-25

1.	छरखौ जं नायन बान	– मदाराम ब्रह्म
2.	संसारनि अन्नाइ	– प्रम'द चन्द्र ब्रह्म
3.	बेसे गोजोन बेसे गोजों	– नीलेश्वर ब्रह्म
4.	सम बेसम	– अरबिन्द उजिर
5.	मोनाबिलि	– समर ब्रह्म चौधुरी
6.	गोथां गाब गाथोंसै	– अनजु
7.	दावदो दे दाव बर' हारि	– नन्देश्वर बर'
8.	मोदै	– धरणीधर औवारि

Unit-III (खोन्दो-3) : (a) Adolesence Education (b) Value Education - Marks-10

1.	बेसेन मोन्दांथिनि सोलोंथाइ	– ड° दुलुमणि ग'स्वामी राव सोलायगिरि : बिरुपाक्ष गिरि बसुमातारी
2.	लाइमोन बैसो आरो बेनि गोनां सोलोंथाइ	– ड° स्वर्णलता दास राव सोलायगिरि : उमेश बर'

Unit-IV (खोन्दो-4) : Grammar (रावखान्थि) - Marks-20

बेखेवफा, सोदोब बेखेवफा आरो मावरिजा बेखेवफा, दाजाबदा
थारजा दाजाबदा, बां सानराय दाजाबदा, थि फोरमायग्रा दाजाबदा,
बाथ्रा खोन्दोब, बाथ्रा फान्दाय, बाथ्राफाव।
फरायनो गोनां बिजाब :

1. गोजौ रावखान्थि – मधुराम बर'
2. गोनां रावखान्थि – कमल कुमार ब्रह्म

Unit-V (खोन्दो-5) : Essay writing (रनसाय) - Marks-15

रनसायनि आयदा :

क) आसाम आरो भारतारि हारियारि जिउनि सोमोन्दै
ख) थुनलाइ आरो हारिमुनि सोमोन्दै
ग) बिगियान आरो जुन्थियारि बिद्यानि सोमोन्दै
घ) सुबुं अनजिमा आरो भारत हादर
ङ) समाज आरो रांखान्थियारि हालसालनि सोमोन्दै
च) सोलोंथाइ आरो गेलेनायनि सोमोन्दै
छ) दावबायनायनि सोमोन्दै

फरायनो गोनां बिजाब :

1. राव आरो रनसाय- मधुराम बर'
2. रनसाय बिथुन - नीलकमल ब्रह्म

***

HINDI (MIL)

SYLLABUS FOR HIGHER SECONDARY COURSE

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 हेती 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-समाज विज्ञान 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 रोजगार 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 सम्यक 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 नजरिये 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 है। 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 काम नहीं 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 यहाँ 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 संभाषन 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 जरूरत 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 जरूरी होगा कि किताबों में आए काव्यांशों की संगीतबद्ध प्रस्तुतियों के ऑडियो-विडियो 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 जरूरत है। इनके प्रदर्शन के क्रम में इन पर लगातार बातचीत के जरिए 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 पाठ्यसामग्रियों को विद्यार्थी देख सकें और शिक्षक उनकी 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 सके 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 समझ 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, ट्युटोरियल 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।

HINDI (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	अपठित बोध (गद्यांश और काव्यांश-बोध)	15+5=20	40
Unit-II	रचनात्मक लेखन एवं जन-संचार		

	माध्यम अभिव्यक्ति और माध्यम (प्रिंट माध्यम, संपादकीय, रिपोर्ट, आलेख, फीचर-लेखन)	5+5+5+5+5=25	60
Unit-III	पाठ्य पुस्तक : आरोह (भाग-2) (काव्यांश-20, गद्यांश-20)	40	80
	पूरक पुस्तक : वितान (भाग-2)	15	20
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Unit-I : अपठित बोध : **20**

1. काव्यांश-बोध पर आधारित पाँच लघुत्तरात्मक प्रश्न (1×5) 5
2. गद्यांश-बोध पर आधारित बोध, प्रयोग, रचनांतरण, शीर्षक आदि पर लघुत्तरात्मक प्रश्न) 15

Unit-II : रचनात्मक लेखन एवं जन-संचार माध्यम : **25**

1. निबंध (किसी एक विषय पर) 10
2. कार्यालयी पत्र (विकल्प सहित) 5
3. ❖ प्रिंट माध्यम, संपादकीय, रिपोर्ट, आलेख आदि पर पाँच अतिलघुत्तरात्मक प्रश्न पूछे जाएंगे
   ❖ आलेख (किसी एक विषय पर) 5
4. फीचर लेखन (जीवन-संदर्भों से जुड़ी घटनाओं और स्थितियों पर फीचर लेखन-विकल्प सहित) 5

Unit-III : आरोह भाग-2 (काव्य भाग और गद्य भाग) **20 + 20 = 40**

1. दो काव्यांशों में से किसी एक पर अर्थ ग्रहण के चार/पाँच प्रश्न 8
2. काव्यांश के सौन्दर्यबोध पर दो काव्यांशों में विकल्प दिया जाएगा तथा किसी एक काव्यांश के तीनों प्रश्नों के उत्तर देने होंगे। 6
3. कविताओं को विषय-वस्तु से संबंधित तीन में से दो लघुत्तरात्मक प्रश्न 3 + 3 = 6
4. दो में से किसी एक गद्यांश पर आधारित अर्थ-ग्रहण के चार प्रश्न 2 + 2 + 2 + 2 = 8
5. पाठों की विषय-वस्तु पर आधारित पांच में से चार बोधात्मक प्रश्न 3 +3 +3 +3 = 12

पूरक पुस्तक : वितान भाग-2 **15**

1. पाठों की विषयवस्तु पर आधारित तीन में से दो बोधात्मक प्रश्न 3 + 3 = 6
2. विचार/संदेश पर आधारित तीन में से दो लघुत्तरात्मक प्रश्न 2 + 2 = 4
3. विषयवस्तु पर आधारित दो में से एक निबंधात्मक प्रश्न 5

निर्धारित पुस्तकें :

(i) आरोह-भाग-2

एन.सी.ई.आर.टी. द्वारा विकसित और असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी द्वारा प्रकाशित

(ii)वितान भाग-2

एन.सी.ई.आर.टी. द्वारा विकसित और असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी द्वारा प्रकाशित

(iii) अभिव्यक्ति और माध्यम

एन.सी.ई.आर.टी. द्वारा विकसित और असम राष्ट्रभाषा प्रचार समिति, गुवाहाटी द्वारा प्रकाशित

The following prose & Poetry pieces are prescribed for H.S. Final year course in Hindi

काव्य खंड

1.	दिन जल्दी-जल्दी ढलता है	-हरिवंशराय बच्चन
2.	कविता के बहाने	-कुँवर नारायण
3.	कैमरे में बंद अपाहिज	-रघुवीर सहाय
4.	सहर्ष स्वीकारा है	-गजानन माधव मुक्तिबोध
5.	उषा	-शमशेर बहादुर सिंह
6.	कवितावली	-तुलसीदास
7.	रूबाइयाँ	-फिराक गोरखपुरी
8.	छोटा मेरा खेत	-उमाशंकर जोशी

गद्य खंड

9.	बाजार दर्शन	-जैनेंद्र कुमार
10.	काले मेघा पानी दे	-धर्मवीर भारती
11.	चार्ली चैप्लिन यानी हम सब	-विष्णु खरे
12.	नमक	-रजिया सज्जाद जहीर
13.	शिरीष के फूल	-हजारीप्रसाद द्विवेदी

पूरक पुस्तक

1.	सिल्वर वैडिंग	-मनोहर श्याम जोशी
2.	अतीत में दबे पाँव	-ओम थानवी

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NEPALI (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	Prose	35	60
Unit-II	Poetry	25	50
Unit-III	(A) Adolescence Education (B) Value Education	10	30
Unit-IV	Grammar	20	35
Unit-V	Essay Writing	10	25
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Unit - I प्रकाइ - १ - गद्य ः **Marks : 35** **Periods : 60**

१. असमे नेपाली संस्कृति - दुर्गासाद घिमिरे
२. नेपाली साहित्यको इतिहासमा सर्वश्रेष्ठ पुरुष - लक्ष्मीप्रसाद देवकोटा
३. शत्रु - विश्वेश्वरप्रसाद कोइराला
४. स्वतन्त्रता सङ्ग्रामी छविलाल उपाध्याय - विष्णुलाल उपाध्याय
५. कुनै गुलाफ ओभानो छैन यहाँ - पारिजात
६. चर्यापदर नेपाली भाषा - डा खेमराज नेपाल
७. अव्यवस्थित संरचना - खडगराज गिरी

Unit - II पकाइ - २-पद्य ः **Marks : 25** **Periods : 50**

१. साहित्य सुधा - धरणीधर कोइराला
२. नचिनिने भएछौ - अगमसिंह गिरी
३. तीजको बयान - महानन्द सापकोटा
४. आकाशका तारा के तारा - हरिभक्त कटुवाल
५. म रमाउन सक्ने मेरो देश - हरि गजुरेल

Unit - III पकाइ - ३ नैतिक शिक्षा ः **Marks : 10** **Periods : 30**

१. किशोरकाल र उनीहरुका
लागि उपयोगी शिक्षा - गुरुप्रसाद उपाध्याय

२. शिक्षाको आधार र उद्देश्य - तारापति उपाध्याय

Unit - IV पकाइ - ४ - व्याकरण ः **Marks : 20** **Periods : 35**

पुरुष, वचन, लिङ्ग, काल, पक्ष, आदरार्था

Unit - V पकाइ - ५ - निबन्ध ः **Marks : 10** **Periods : 25**

सयमको मूल्य, अनुशासन, परोपकार, विज्ञानको चमत्कार, नारीशिक्षा

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URDU (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1 :	Prose	30	60
Unit-2 :	Poetry	25	50
Unit-3 :	Biographies and Grammar	20	40
Unit-4 :	Translation from English to Urdu	10	20
Unit-5 :	Essay Writing	15	30
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Following lessons and pieces of poem are to be read from the book **"Urdu Ki Nai Kitab"** for class XII published by NCERT, New Delhi in the year 1996 [except item No. IV(a) of unit 2]

Unit: 1 : Prose : **30 Marks**

	Lessons	: ***Written By***
(a)	Marhoom ki yad main	: Petros Bokhari
(b)	Chirya Chirye Ki Kahani	: Abul Kalam Azad
(c)	Mirza Zahirdar Beg	: Dr. Nazir Ahmed
(d)	Bhoola	: Rajendra Singh Bedi

Unit-2 : Poetry : **25 Marks**

	Pieces of Poem	***Name of Poet***
(i)	Ghazals	: (a) Kwaja Mir Dard (b) Sheikh Ibrahim Zauq (c) Mohd. Shad Azimabadi (d) Firaq Gorakhpoori
(ii)	Mathonawi (Duniya ki Be-thibati)	: Nawab Mirza Shauq Lakhnavi
(iii)	Marthia (Garmi-e-Dast-e-Karbala)	: Mir Babur Ali Anis
(iv)	Nazam	
	(a) Tarana-e-A'sam	: Anjum Shujabadi (Abul Hussain Mazumder)
	(b) Shuay-e-Ummid	: Dr.Mohd. Iqbal

Unit-3: Biographies : **10 Marks**

Grammar : **10 Marks**

(i) Fail and its kind
(ii) Jumla and its kind
(iii) Jins and 'Adad
(iv) Muhawara

Unit-4 : Translation (Tarjuma) from English to Urdu : **10 Marks**

Unit-5 : An Essay on general topics : **15 Marks**

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KHASI (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	Prose	35	70
Unit-II	Poetry	30	60
Unit-III	Grammar	20	45
Unit-IV	Essay Writing	15	25
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Unit I : Prose : **35 Marks**

Textbook : (1) **Phuit ka Sabuit**, *Author* : S. J. Duncan

Selected Pieces :

(i) Ka Akor Kaba Tam

(ii) U Men Mali

Textbook : (2) **Katto Katne Shaphang ka sonnet**

Selected Pieces :

Lynnong I & II

Unit II : Poetry : **30 Marks**

Textbook : (1) **Ki Poetry Khasi**, *Author* : V. G. Bareh

Selected Pieces :

(i) U Tiewdohmaw Ha Shiteng Riat

(ii) Ka Wah Umkhrah

(iii) Hapdeng Ki Law Kynjah Ka Tlang

Textbook : (2) **Ha Ki Sur Ka Poetry**, *Author* : S. S. Majaw

Selected pieces

Ka Shnong Jingthala

Unit III : Grammar : **20 Marks**

Textbook : **Ka Grammar** *by* H. W. Sten

Pieces : Lynnong II, IV, VI, VIII

Unit IV : Essay Writing : **15 Marks**

To write a topical essay on the subjects other than political and religious.

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GARO (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1 :	Prose	40	70
Unit-2 :	Poetry	30	60
Unit-3 :	Essay	15	45
Unit-4 :	Composition	15	25
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Unit -1 : Prose : **40 Marks**

Pieces to be read :

(i) Kitap Seani : H.K. Sangma
(ii) Katchaani Chimik : S.G. Momin
(iii) Ang Aganronggipa Kattarang : S.K. Marak
(iv) Bipana Krakra : B.S. Momin
(v) Lekka Pora aro Gisik Bimik : K.A. Momin
(vi) Gital Chasongo Janggi Tangani : L.R. Marak

Textbook : **A Chikni Chanchibewale Seanirang**,
Edited By K.M. Momin

Unit-2 : Poetry : **30 Marks**

Pieces to be read :

(i) Anga Mechik : J.D. Shira
(ii) A chik A song : B.Bangshall
(iii) Do Kru : J.D. Shira
(iv) Tingtotsa Chi : Noho B. Sangma
(v) Seng nat : H.D. Momin
(vi) Waimong Bri, Matchuni Simchi : Herilla Rechil
(vii) Dongsogimin Rasong : Thakdir N. Sangma

Textbook : **A Chik Poedorang**, *Compiled By* L.D. Shira

Unit - 3 : Essay : **15 Marks**

Unseen - Topics may be on contemporary problems or issues on Assam and India like Arts, Culture, Economy, Science, Technology etc.

Unit - 4 : Composition : **15 Marks**

Book recommended : A Chik composition *by* K.M. Momin

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MIZO (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1 :	Prose	25	60
Unit-2 :	Poetry	25	50
Unit-3 :	Fiction	15	30
Unit-4 :	Drama	15	25
Unit-5 :	Grammar and Composition	20	35
	Total	**100**	**200**

Unitwise Distribution of Course Contents :

Unit-1 : Prose (THU) : **25 Marks**

(i)	Hnam inpumkhatna kawnga tawng pawimawhna	:	P. C. Biaksiama
(ii)	Mizo inneih dan	:	B. Lalthangliana
(iii)	Mizo nula huaisen pahnih	:	R.L. Thanmawia
(iv)	Val upa	:	Darchhawna
(v)	Lung in malsawmna	:	H. Lallungmuana
(vi)	Tu nge Mizo	:	Z. T. Sangkhuma
(vii)	Zoram indopui pahnihua	:	C. Chhuanvawra
(viii)	Tlangvalte u, nangmahni khawvel a nei :	:	P.L. Liandinga (Lehlin)
(ix)	Lungphang lo la	:	L. Keivom
(x)	Thlaa lawn	:	A. Sawihlira

Unit-2 : Poetry (HLA) : **25 Marks**

(i)	Pi pu chhuahtlang hlui	:	Liandala
(ii)	Lungdawh hla	:	V. Hawla
(iii)	Kan ram nuaruah	:	Rokunga
(iv)	Piallci hmun rem kan bel e	:	Dozinga
(v)	Tleitirah	:	Dura Chongthu
(vi)	Awkhawhar lenkawl ka han thlir a	:	Vankhama
(vii)	Zun phur thing par	:	Damhauhva
(viii)	Takhlai ni kawlkung	:	Romani
(ix)	Khuavel i la chhing ngei ang	:	V. Thangzama

(x) Panlai kei ka ram tuanna : Lalsangzuali Sailo
(xi) Phungrual an tin ang a : Laithangpuia
(xii) Ka tan ni leh thla reng a eng tawh lo : Taivela

Unit-3 : Fiction : **15 Marks**

(i) Lali Biakliana

Unit-4 : Drama : **15 Marks**

(i) Chharmawia : Laltluangliana Khiangte
(ii) Zothangsangi : Vanneihtluanga

Unit-5: Grammar and Composition : **20 Marks**

(i) Precis ziak
(ii) Prefix and Suffix
(iii) Essay Ziak
(iv) Tawng upa

Prescribed Textbooks : **Mizo (core)** XII *by* MBSE, Aizawl
Mizo Grammar and Composition for class XI and XII *By* MBSE, Aizawl.

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MANIPURI (MIL)

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Topic	Marks	Periods
Unit-1	Prose	35	70
Unit-2	(A) Adolescence Education & (B) Need for Value Education	10	20
Unit-3	Poetry	30	50
Unit-4	Grammar	15	35
Unit-5	Essay Writing	10	25
	Total	**100**	**200**

Unitwise Distribution of Course Contents :

Textbook : **Anouba Manipuri Wareng -Sheireng**
(MIL, Final Year Higher Secondary)

Published by : Assam Higher Secondary Education Council, Guwahati.

Unit-1 : Prose **(35 Marks)**

Pieces to be read

১। মণিপুরী লোকসাহিত্য ঃ অশংবম মীনকেতন সিংহ
২। হৌজিক্কী মণিপুরী ৱারেং ঃ এলাংবম নীলকান্ত সিংহ
৩। মৈতৈ নুপী ঃ এস, কৃষ্ণমোহন সিংহ
৪। ইলিশা অমগী মহাও ঃ এন, কুঞ্জমোহন সিংহ

Unit-2 : **(10 Marks)**

১। এডোলেসন্স এডুকেশন ঃ ওৱাই, তোমচৌ সিংহ
২। ভেলু এডুকেশনগী তঙায়ফদবা ঃ এন, জি, ইবেতোম্বী সিংহ

Unit-3 : Peotry (শৈরেং) ঃ **(30 Marks)**

Pieces to be read

১। মৈতৈ চনু ঃ লামাবম কমল সিংহ
২। পুন্সি হিদোম ঃ হৱাইবম নবদ্বীপচন্দ্র সিংহ
৩। কমলদা ঃ অশাংবম মীনকেতন সিংহ
৪। মণিপুর ঃ এলাংবম নীলকান্ত সিংহ

৫। লৈলাংবা ঃ লাইশ্রম সমরেন্দ্র সিংহ

৬। মঙাল ঃ এস, ধবল সিংহ

Unit-4 : Grammar **(15 Marks)**

Recommended Books :

1. Miteirongi Wahouron : N. Amusana Singha
2. Manipuri Grammar : Published by : Council of Higher Secondary Education, Manipur.

১। সমাস;

২। কারক;

৩। বিভক্তি;

৪। উপসর্গ;

৫। প্রত্যয়;

Unit-5 : Essay Writing **(10 Marks)**

Preferable Topics

১। আসাম, মণিপুর অমসুং ভারতকী মীওইবগী পুন্সি অমসুং পরম্পরা;

২। সাহিত্য, কলা অমসুং নাৎ (সংস্কৃতি) গা মরী লৈনবা;

৩। সাইন্স অমসুং টেক্নোলোজিগা মরী লৈনবা;

৪। মীশিং (Population);

৫। অকোয়বগী ফিভম (Environment);

৬। সমাজ অমসুং অর্থনীতিগা মরী লৈনবা;

৭। মহৈ-মশীং অমসুং শান্ন-খোৎনবগা মরী লৈনবা;

৮। লমকোয়বগা মরী লৈনবা;

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HMAR (MIL)

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks & Periods :

Unit	Topics	Marks	Periods
Unit-1	Prose	40	70
Unit-2	Poetry	25	60
Unit-3	Grammar & Composition	25	45
Unit-4	Essay	10	25
	Total	**100**	**200**

Unitwise Distribution of Course Contents :

Unit-1 : PROSE : **Marks-40**

(i)	Lachit Barphukan	:	Thangnuntluong Ralsun	15
(ii)	Sinlung	:	Dr. Lal Dena	5
(iii)	Chulram Fang	:	H F Nghakaka	5
(iv)	Mithi Sm'lngbawl Dan	:	H V Vara	5
(v)	Khuongpuitlur	:	S N Ngurte	5
(vi)	Dr. Ambedkar	:	R Tawna Khawbung	5

Unit-2 : POETRY : **Marks-25**

Classical :

(i)	Chawn Lam	:	Folk song	5

Modern :

(ii)	Sawrthlapui	:	W. R. Pudaite	4
(iii)	Zo Tlangsangah	:	L. Keivom	4
(iv)	Thangvan Sang	:	Kama Sungte	4
(v)	Zion Khawvar Nghaktuhai	:	Pautinkhup	4
(vi)	Aw Kan Hmar Ram	:	Lalkhum Keivawm	4

Unit-3 : Grammar & Composition **Marks-25**

(i)	Parts of Speech	2
(ii)	Noun	2
(iii)	Verb	2
(iv)	Tawng Upa (Idioms & Phrases)	2
(v)	Thumal Iniaichin Bikhai	3
(vi)	Ziek Kawp le Ziek Kawp Lo Ding	3
(vii)	Thumal Pahni Hmang Kawkal Awlhai	3
(viii)	Hmar Tawng Ziek Dik Dan	3
(ix)	Tawngkasuok le A Hrilfiena	2
(x)	Idiomatic Phrase le Tawng Upa	3

Unit-4 :Essay **Marks-10**

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ALTERNATIVE ENGLISH

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Topic	Marks	Periods
Unit-I :	Prose	35	70
Unit-2 :	Poetry	30	60
Unit-3 :	Grammar	20	45
Unit-4 :	Composition	15	25
	Total	**100**	**200**

Textbook : 'VIBGYOR' ***published by*** **Oxford University Press**

Unitwise Distribution of Course Contents :

Unit-1 : PROSE :

(i) The Verger : William Somerset Maugham
(ii) Testament of a Walker : R.K. Narayan
(iii) The Scarecrow : Satyajit Ray
(iv) The Gift of the Magi : O'Henry
(v) On Not Being a Philosopher : Robert Lynd

Unit-2 : POETRY :

(i) Sita : Toru Dutt
(ii) The Brook : Alfred Lord Tennyson
(iii) Ozymandias of Egypt : Percy Bysshe Shelley
(iv) La Belle Dame Sans Merci : John Keats
(v) Village Song : Sarojini Naidu

Unit-3 : GRAMMAR :

(i) Transformation of Sentences (affirmative, interrogative, negative)
(ii) Question Tags
(iii) Use of Prepositions
(iv) Use of Tenses

Unit-4 : COMPOSITION :

Composition based on a given conversational piece.

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ENGLISH (Core)

SYLLABUS FOR HIGHER SECONDARY COURSE

Background :

Students are expected to have acquired a reasonable degree of language proficiency in English by the time they come to class XII, 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, etc.).
- ❖ Taking/making notes from reference materials, recorded talks etc.

Language Items :

The Core Course should draw upon the language items meant for their language proficiency. Particular attention may, however, be given to the following areas of grammar:

The uses of different tense forms for different kinds of narration.

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.

A conscious knowledge of some grammatical rules and sound pattems may be useful and interesting at this stage.

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.

ENGLISH (Core)

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

One paper **3 Hours** **Marks : 100**

Unit wise Weightage :

	Unit/Areas of Learning		Marks
	Section-A		
A.	**Reading Skills**		**10**
	Reading unseen prose passage		
	Section-B		
B.	**Advanced Writing Skills**		**25**
	Section : C		
C.	**Grammar**		
	(i) Narration : Direct and Indirect	**4marks**	**20**
	(ii) Voice	**3marks**	

	(iii) Tenses	**5marks**	
	(iv) Preposition	**4marks**	
	(v) Transformation of Sentences	**4marks**	
D.	**Section-D (Prescribed Books)**		
	(i) Flamingo		**30**
	(ii) Vistas		**15**

SECTION - A

Reading unseen Passage **10 Marks**

Reading unseen prose passage for comprehension.

The total length of the passage will be between 500-800 words. The passages may be one of the following:

(a) Factual Passages e.g. instructions. descriptions, reports.

(b) Discursive passage involving opinion e.g. argumentative. persuasive or interpretative text.

(c) Literary passage e.g. extract from fiction, drama, poetry, essay or biography.

SUMMARY - H.S. Final year

	Unseen Passages	**No of words**	**Testing Areas**	**Marks allotted**
1		500-800	Short answer type questions to test local, global and inferential comprehension	07
			Vocabulary	03

SECTION - B

Advanced Writing Skills **25 Marks**

2. 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. 05

3. A report or a factual description based on verbal input provided (one out of two) (100-125 words) 10

4. Writing one out of two letters based on verbal input. Letter types include : 10

(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

SECTION-C-Grammar **20 Marks**

5. 1. Narration : Direct and Indirect **4marks**

2. Voice **3marks**

3. Tenses **5marks**

4. Preposition **4marks**

5. Transformation of Sentences **4marks**

SECTION-D **45 Marks**

Prescribed Textbooks : (i) FLAMINGO **30 marks**

Prose : Selected Text

1. The Last Lesson : Alphonse Daudet
2. Memoirs of Chota Sahib : John Rowntree
3. Lost Spring : Anees Jung
4. Indigo : Louis Fischer
5. Going places : A.R. Barton

Poetry : Selected Poetries

1. My Mother At Sixty Six : Kamala Das
2. Keeping Quiet : Pablo Neruda
3. A Thing of beauty : John Keats
4. A Roadside Stand : Robert Frost

6. **One** out of two extracts based on poetry from the text to test comprehension and appreciation 4
7. **Three** out of four short questions from the poetry section to test local and global comprehension of text. 2×3=6
8. **Five very** Short answer questions out of seven questions based on the lessons from prescribed text. 1×5=5
9. **Five** short answer questions out of seven questions based on the lessons from prescribed text 2×5=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 80-100 words each) 5

Prescribed Textbooks : (ii) VISTAS **15 marks**

Selected Pieces

1. The Tiger King : Kalki
2. The Enemy : Pearl S. Buck
3. On the Face of it : Susan Hill
4. Memories of Childhood : Zitkala Sa and Bama
5. Magh Bihu or Maghar Domahi : Dr. Praphulladatta Goswami

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) 07
12. **Four** short answer questions from the Supplementary Reader (2x4) 08

Prescribed books :

1. Flamingo : English Reader *published by Assam Higher Secondary Education Council, Bamunimaidam, Guwahati-21, developed by NCERT.*

2. Vistas : Supplementary Reader *published by Assam Higher Secondary Education Council, Bamunimaidam, Guwahati-21, developed by NCERT.*

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PHYSICS

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 70**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	Electrostatics	08	25
Unit-II	Current Electricity	07	22
Unit-III	Magnetic Effects of Current and Magnetism	08	25
Unit-IV	Electromagnetic Induction and Alternating Currents	08	20
Unit-V	Electromagnetic Waves	03	04
Unit-VI	Optics	14	30
Unit-VII	Dual Nature of Matter and Radiation	04	08
Unit-VIII	Atoms and Nuclei	06	18
Unit-IX	Electronic Devices	07	18
Unit-X	Communication System	05	10
	Total	**70**	**180**

Unitwise Distribution of Course contents :

Unit-I : ELECTROSTATICS

Electric charges and their conservation. 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 dipole, electric field due to dipole; torque on a dipole in a uniform electric field.

Electric field lines; 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 charges and of electric dipoles 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

Electric current, flow of electric charges in a metallic conductor, drift velocity and 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 applications to measure potential difference, and for comparing emf of emfs cell'S; measurement of internal resistance of a cell.

Unit-III : MAGNETIC EFFECTS OF CURRENT AND MAGNETISM

Concept of Magnetic field, Oersted's experiment.

Biot-Savart law and its applications to current carrying circular loop (both at centre and at axial point), finite straight conductor.

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. Lorentz force Cyclotron.

Force on a current-carrying conductor in a uniform magnetic field. Force between two parallel current-carrying conductors-definition of one ampere current. Torque experienced by a current loop in a Uniform magnetic field; moving coil galvanometer– its current sensitivity and voltage sentitivity 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. Magnetic Hysteresis Electromagnets and factors affecting their strengths. Permanent magnets.

Unit-IV : ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS

Faraday's Expt, Magnetic flux, Electromagnetic induction; Growth and decay of currents in DC LR, RC circuits, Faraday's law, induced emf and current; Lenz's Law, Eddy currents. Self and mutual inductance.

Alternating currents voltage, peak and rms value of alternating current/voltage power; 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

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

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

Unit-VI : OPTICS (Follow NC Convention wherever necessary)

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, lensmaker's formula. Magnification, power of a lens, combination of thin lenses in contact. Refraction and dispersion of light through a prism.

Scattering of light– blue colour of the 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, presbyopia and astigmatism) using lenses. Microscopes and astronomical

telescopes (reflecting and refracting) and their magnifying powers.

Wave optics : Wavefront and Huygens' principle, reflection and refraction of plane wave at a plane surface using wavefronts. Proof of laws of reflection and refraction using Huygens' 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

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.

Unit-VIII : ATOMS AND NUCLEI

Alpha– particle scattering experiment; Rutherford's atomic model; Bohr model, energy levels, hydrogen spectrum.

Composition and size of a 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 and fusion.

Unit-IX : ELECTRONIC DEVICES

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 SYSTEM

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.

SYLLABUS FOR PHYSICS PRACTICAL

Total Marks- 30

Section-A

Every student will perform 10 experiments (5 from each section) & 8 activities (4 from each section) during the academic year.

Experiments :

1. To observe the variation of potential difference (V) across a given resistor by changing the curent (I) through it. Draw I-V graph and find the value of the given resistance from the graph.
2. To find the value of a given resistance by using a metre bridge.
3. Construct a potential divider with the help of a rheostat and a battery (or cell) and use it to verify, Ohm's Law.
4. To determine the internal resistance of given primary cell using potentiometer.

5. To locate the poles of a long bar magnet and to find the ratio of magnetic to geometric length.
6. Place a bar magnet in the magnetic meridian and draw the field lines with its
   (i) *North-pole pointing towards the geographical north pointing.*
   (ii) *South pole pointing towards the geographical north* on one side of the magnet and to locate the position of the neutral point.

Activities :

1. To observe deflection of a magnetic needle placed near a conductor carrying current.
2. To measure resistance, dC voltage, dC current and check continuity of a given electrict circuit using multimeter.
3. To assemble a household circuit comprising three bulbs, three on/off switches a fuse and a power source.
   or, Assemble an extension board with an indicator, a fuse, three plug points and three on/off switches.
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. Assemble an electric circuit comprising of atleast a battery, rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also draw the correct circuit diagram.

Section-B

Experiments :

1. To find the focal length of a convex lens by plotting graphs between u and υ [Taken three readings making $u > \upsilon$ and three readings making $u < \upsilon$.]
2. To find the focal length of a concave lens using a convex lens.
3. To find the angle of minimum deviation for a given equilateral prism by plotting a graph between the angles of incidence (i) and corresponding angles of deviation (δ). Determine the refractive index of the material of the prism. [Take angles of incidence as 35^0, 40^0, 45^0, 50^0, 55^0, 60^0]
4. Measure the angles of incidence (i) and corresponding angles of refraction (r) for a glass slab by pin method. Draw sin i – sin r graph and find the refractive index of the material of the glass slab from the graph.
5. To find refractive index of a given liquid with the help of a travelling microscope.
6. Draw the I-V characteristics graph of a p – n junction in forward bias. Find the dc forward resistance of the diode from the graph.
7. Draw the output characteristic graphs of an n – p – n transistor in common emitter configuration. Find the value of β from the graphs.

Activities :

1. To identify resistance from resistance colour codes and to verify the values using a multimeter.
2. To identify a diode, an LED, a transistor, a resistor, a capacitor and an IC from a mixed collection of such items using a multimeter.
3. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
4. To observe polarization of light using two polaroids.

5. Identify a concave and a convex mirror by observing the images formed by the mirrors.
6. To study the nature and size of the image formed by (i) convex lens (ii) concave mirror, using an optical bench.
7. Indentify a concave and a convex mirror by the image formed by the mirrors.

Suggested Investigatory Projects : (Students and teachers are free to design other project.)

1. To investigate whether the energy of a simple pendulum is conserved.
2. To investigate changes in the velocity of a body under the action of a constant force and determine its acceleration.
3. To compare effectiveness of different materials as insulators of heat.
4. To study various factors on which the internal resistance/emf of a cell depends.
5. To study infrared radiations emitted by different sources using photo-transistors.
6. To compare effectiveness of different materials as absorbers of sound.
7. To design an automatic traffic signal system using suitable combination of logic gates.
8. To compare the Young's modulus of elasticity of different specimens of rubber and also draw their elastic hysteresis curve.
9. To study collision of two balls in two dimensions.

Evaluation Scheme for Practical Examination :

*	One experiment from any one section	**12 marks**
*	One activity (from any one section) and one investigatory project	
	Or	**4+4=8 marks**
	Two activities (maximum one from each section)	
*	Practical record (experiments, activities and projects)	**6 marks**
*	Viva voce on activities, experiments and projects	**4 marks**
	Total	**30 marks**

Recommended Textbooks.

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

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CHEMISTRY

SYLLABUS FOR HIGHER SECONDARY COURSE

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 medical, 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 and 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 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, applications 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 medical, engineering, technology) at tertiary level.
- ❖ To expose the students to various emerging new areas of chemi·stry 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 of 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.

CHEMISTRY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 70**

Unitwise distribution of marks and periods :

Unit No.	Title	Marks	Periods
Unit-1	Solid State	4	12
Unit-2	Solutions	5	12
Unit-3	Electrochemishy	5	14
Unit-4	Chemical kinetics	5	12
Unit-5	Surface chemistry	4	8
Unit-6	General principles and processes of Isolation of Elements	3	8
Unit-7	p-Block Elements	8	14
Unit-8	d- and f-Block Elements	5	14
Unit-9	Coordination Compounds	3	12
Unit-10	Haloalkanes and Haloarenes	4	12
Unit-11	Alcohols, Phenols and Ethers	4	12
Unit-12	Aldehydes, Ketones and Carboxylic acids	6	12
Unit-13	Organic Compounds containing Nitrogen	4	10
Unit-14	Biomolecules	4	12
Unit-15	Polymers	3	8
Unit-16	Chemistry in Everyday life	3	8
	Total	**70**	**180**

Unitwise Distribution of Course contents :

Unit-1 : Solid State

Classification of solids based on different binding forces : molecular, ionic, covalent and metallic solids, amorphous and Crystalline solids (e1ementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

Unit-2 : Solutions

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, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass.

Unit-3 : Electrochemistry

Redox reactions; conductance in electrolytic solutions, specific and molar conductivity variations of conductivity with concentration, Kohlrausch's Law, electrolysis and laws 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, fuel cells; corrosion.

Unit-4 : Chemical kinetics

Rate of a reaction (average and instantaneous), factors affecting rates 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).

Unit-5 Surface chemistry

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

Unit-6 General principles and processes of Isolation of Elements

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

Unit-7 p-Block Elements

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

Group 16 elements : General introduction, electronic configuration, oxidation states, occurence, trends in physical and chemical properties; dioxygen : preparation, properties and uses; simple 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 or halogens (structures only).

Group 18 elements : Genera1 introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

Unit-8 : d and f Block Elements

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals– rnetallic 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.

Actinoids : Electronic configuration, oxidation states.

Unit-9 : Coordination Compounds

Coordination compounds : Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding; Werner's theory, VBT, CFT; isomerism, importance of coordination compounds (.in qualitative analysis, extraction of metals and biological systems).

Unit-10 Haloalkanes and Haloarenes

Haloalkanes : Nomenclature, nature of C-X bond, physical and chemical properties, mechanism

of substitution reactions.

Haloarenes : Nature of C-X bond, substitution reactions (directivc influence of halogen for mono-substituted compounds only).

Uses and environmental effects of-dichloromethane, trichloromethane, tetrochloromethane, iodo-form, freons, DDT.

Unit-11 : Alcohols, Phenols and Ethers

Alcohols : Nomenclature, methods of preparation, physical and chemical properties (primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration of alcohol uses, some important compounds– methanol and ethanol.

Phenols : Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenols, electrophillic substitution reactions, uses of phenols.

Ethers : Nomenclature, methods of preparation, physical and chemical properties, uses.

Unit-12 : Aldehydes, Ketones and Carboxylic acids

Aldehydes and Ketones : Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, and 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-13 : Organic Compounds containing Nitrogen

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-14 Biomolecules

Carbohydrates : Classification (aldoses and ketoses), monosaccharides (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); importance.

Proteins : Elementary idea of a - amino acids, peptide bond, polypeptides, proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes.

Hormones-Elementary idea (excluding structures)

Vitamins : Classificacion and functions.

Nucleic Acids : DNA and RNA.

Unit-15 Polymers

Classification : Natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers: natural and synthetic like polythene, nylon, polyesters, bakelite, rubber.

Unit-16 : Chemistry in Evelyday life

1. Chemicals in medicines– analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.
2. Chemicals in food preservatives, artificial sweetening agents.
3. Cleansing agents – soaps and detergents, cleansing action.

SYLLABUS FOR CHEMISTRY PRACTICAL

Total Marks- 30 **Total Periods 60**

Microchemical methods are available for several of the practical experiments. Wherever possible such techniques should be used.

A. Surface Chemistry

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

B. Chemical Kinetics

(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 temperaturc 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

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

D. Electrochemistry

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

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

F. Preparation of Inorganic Compounds

(a) Preparation of double salt, ferrous ammonium sulphate or potash alum.
(b) Preparation of potassium ferric oxalate.

G. Preparation of Organic Compounds

Preparation of any one of the following compounds :
(a) Acetanilide
(b) Di-benzal acetone
(c) *p*-Nitroacetanilide.
(d) Aniline yellow or 2-Napththol aniline dye.

H. Test for the Functional Groups Present in Organic Compounds

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

I. Study of Carbohydrates, Fats and Proteins in pure form and detection of their presence in given Food Stuffs

J. Determination of Concentration/Molarity of $KMnO_4$ Solution by Titrating it against a Standard Solution of

(a) Oxalic acid

(b) Ferrous ammonium sulphate

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

K. Qualitative Analysis

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-}, $C_2O_4^{2-}$ CH_3COO^{-}

(Note : Insoluble salts excluded)

L. Projects

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

- ❖ Study of 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, ete.
- ❖ Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time ete.)
- ❖ 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 ete.
- ❖ Extraction of essential oils present in *Saunf* (aniseed), *Ajwain* (carum), *Illaicbi* (cardamom).
- ❖ Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

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

	Evaluation Scheme for Practical Examination	**Marks**
1.	**Volumetric analysis**	**6**
	(i) Completion of experiment	
	(ii) Results and calculation	
2.	**Qualitative analysis**	**10**
	(i) Acid radicals	
	(ii) Basic radicals	
3.	**Content based experiment**	**4**
	(One experiment out of F, G, H, I)	
4.	**Project works**	**5**
	Or	
	Any three experiments from A to E	
	(To be written in separate note book and submit in examination)	
5.	**Laboratory note book + Viva voce**	**5**

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MATHEMATICS

SYLLABUS FOR HIGHER SECONDARY COURSE

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.

MATHEMATICS

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	Relations and Functions	10	28
Unit-II	Algebra	13	40
Unit-III	Calculus	44	72
Unit-IV	Vectors and Three-Dimensional Geometry	17	25
Unit-V	Linear Programming	06	15
Unit-VI	Probability	10	20
	Total	**100**	**200**

APPENDIX :

1. **Proofs in Mathematics :**
2. **Mathematical Modelling :**

Unitwise Distribution of Course contents :

Unit-I : RELATIONS AND FUNCTIONS

1. ***Relations and Functions :*** ***(Periods 14)***

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 :*** ***(Periods 14)***

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

Unit-II : ALGEBRA

1. ***Matrices :*** ***(Periods 20)***

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 :*** ***(Periods 20)***

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 example, 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 :*** ***(Periods 20)***

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concept of exponential and logarithmic functions and their derivatives. 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 interpretations.

2. ***Application of Derivatives :*** ***(Periods 10)***

Applications of derivatives : Rate of change, increasing/ decreasing functions, tangents and normals, 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 :*** ***(Periods 20)***

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

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

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

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

and $\int \sqrt{x^2 - a^2}\,dx$ to be evaluated.

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 :*** ***(Periods 10)***

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

5. ***Differential Equations :*** ***(Periods 12)***

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 :

$\frac{dy}{dx} + Py = Q$, where P and Q are functions of x.

Unit-IV : VECTORS AND THREE-DIMENSIONAL GEOMETRY

1. ***Vectors :*** ***(Periods 10)***

Vectors and scalars, magnitude and direction of a vector. Direction cosines/ ratios of vectors. 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.

2. ***Three-dimensional Geometry :*** ***(Periods 15)***

Direction cosines/ ratios of a line joining two points. Cartesian and vectors 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.

$\int \sqrt{a^2 \pm x^2}\,dx$.

Unit-V : LINEAR PROGRAMMING ***(Periods 15)***

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 ***(Periods 20)***

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

Appendix

1. ***Proofs in Mathematics :***

Through a variety of examples related to mathematics and already familiar to the learner, bring out different kinds of proofs : direct, contrapositive, by contradiction, by counter-example.

2. ***Mathematical Modelling :***

Modelling real-life problems where many constraints may really need to be ignored (continuing from Class XI). However, now the models concerned would use techniques/ results of matrices, calculus and linear programming.

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BIOLOGY

The present syllabus reinforces the ideas introduced in the lower classes while the students learn new concepts besides getting an exposure to contemporary areas of the subject. The syllabus also aims at emphasizing on the underlying principles which 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, consequential flow of concepts without any jarring jumps. The syllabus also stresses on the connection of the study of Biology to real life problems, use of biological discoveries/innovations in everyday life– in 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 diversities 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.

BIOLOGY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 70**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
	Group-A : BOTANY		
Unit-6	Sexual Reproduction (1, 2)	6	17
Unit-7	Genetics and Evolution (7)	5	9
Unit-8	Biology and Human Welfare (9, 10)	7	19
Unit-9	Biotechnology and its application (11, 12)	12	30
Unit-10	Ecology (13, 16)	5	15
	Group-B : ZOOLOGY		
Unit-6	Reproduction (3, 4)	5	18
Unit-7	Genetics and Evolution (5, 6)	15	36
Unit-8	Biology and Human Welfare (8, 9)	5	16
Unit-9	Biotechnology and its Application (12)	1	2
Unit-10	Ecology (14, 15, 16, 17)	9	20
	Total	**70**	**180**

Unitwise Distribution of Course contents :

Unit-VI : Reproduction :

Chapter 1 : Reproduction in Organisms : (i) Asexual Reproduction; (ii) Sexual Reproduction

,, **2 : Sexual Reproduction in Flowering Plants :** (i) Flower-A fascinating Organ of Angiosperms; (ii) Pre-fertilization: Structures and Events; (iii) Double Fertilization; (iv) Post-fertilization: Structures and Events; (v) Apomisix and Polyembryony.

,, **3 : Human reproduction :** (i) The Male Reproductive System; (ii) The Female Reproductive System; (iii) Gametogenesis; (iv) Menstrual Cycle; (v) Fertilization and Implantation; (vi) Pregnancy and Embryonic Development; (vii) Parturition and Lactation.

,, **4 : Reproductive Health :** (i) Reproductive Health-Problems and Strategies; (ii) Population Explosion and Birth Control; (iii) Medical Termination of Pregnancy; (iv) Sexually Transmitted Diseases; (v) Infertility.

Unit-VII : Genetics and Evolution

Chapter 5 : Principles of Inheritance and Variation : (i) Mendel's Laws of Inheritance; (ii) Inheritance of One Gene; (iii) Inheritance of Two Genes; (iv) Sex Determination; (v) Mutation; (vi) Genetic Disorders.

„ **6 : Molecular Basis of Inheritance :** (i) The DNA; (ii) The Search for Genetic Material; (iii) RNA World; (iv) Replication; (v) Transcription; (vi) Genetic Code; (vii) Translation; (viii) Regulation of Gene Expression; (ix) Human Genome Project; (x) DNA Fingerprinting.

„ **7 : Evolution :** (i) Origin of Life; (ii) Evolution of Life Formes- A Theory; (iii) Evidences for Evolution; (iv) Adaptive Radiation; (v) Biological Evolution; (vi) Mechanism of Evolution; (vii) Hardy-Weinberg Principle; (viii) A Brief account of Evolution; (ix) Origin and Evolution of Man.

Unit-VIII : Biology in Human Welfare

Chapter 8 : Human Health and Diseases : (i) Common Diseases in Humans; (ii) Immunity; (iii) AIDS; (vi) Cancer; (v) Drugs and Alcohol Abuse.

,, **9 : Strategies for Enhancement in Food Production :** (i) Animal Husbandry; (ii) Plant Breeding; (iii) Single Cell Protein; (iv) Tissue Culture

„ **10: Microbes in Human Welfare :** (i) Microbes in Household Products; (ii) Microbes in Industrial Products; (iii) Microbes in Sewage Treatment; (iv) Microbes in Production of Biogas; (v) Microbes as Biocontrol Agents; (vi) Microbes as Biofertilisers.

Unit-IX : Biotechnology

Chapter 11 : Biotechnology; Principles and Processes :

(i) Principles of Biotechnology; (ii) Tools of recombinant DNA Technology; (iii) Processes of Recombinant DNA Technology.

„ **12: Biotechnology and its Application :**

(i) Biotechnological Applications in Agriculture;

(ii) Biotechnological Applications in Medicine;

(iii) Transgenic Animals; (iv) Ethical Issues.

Unit-X : Ecology

Chapter 13 : Organisms and Populations : (i) Organism and its Environment; (ii) Populations.

„ **14 : Ecosystems :** (i) Ecosystem- Structure and Function; (ii) Productivity; (iii) Decomposition; (iv) Energy Flow; (v) Ecological Pyramids; (vi) Ecological Succession; (vii) Nutrient Cycling; (viii) Ecosystem Services.

„ **15 : Biodiversity and Conservation :** (i) Biodiversity; (ii) Biodiversity Conservation; (iii) National Park and Sanctuaries of Assam with special reference to conservation of endangered species.

„ **16 : Bioresources of Assam :** (i) Medicinal and Timber Yielding Plants; (ii) Sericogenic Resources (Muga and Eri)

„ **17: Environmental Issues :** (i) Air Pollution and its Control; (ii) Water Pollution and its Control; (iii) Solid Wastes; (iv) Agro-chemicals and their effects; (v) Radioactive Wastes; (vi) Greenhouse Effect and Global Warming; (vii) Ozone Depletion in the Stratosphere; (viii) Degradation by Improper Resource Utilization and Maintenanace; (ix) Deforestation.

SYLLABUS FOR BOTANY PRACTICAL
(Marks-15)

1. Study of the reproductive parts of different flowers.
2. Study of flowers adapted to pollination by different agencies (wind, insect).
3. Study of percentage of pollen germination on a slide.
4. To study pollen tube growth on the stigma.
5. To study fruits and seeds of any common fruit (e.g. legume) at different stages of development.
6. To study mitosis in onion root tips (preparation).
7. To study meiosis in onion buds (permanent slide)
8. Exercise on controlled pollination– emasculation, tagging and bagging.
9. Stain tissue section for nucleic acid (aceto carmine stain).
10. To study the pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
11. Study plants found in dry conditions. Comment ‘on their adaptations/ ecosystems.
12. To study plants of aquatic conditions. Comment on their adaptations/ ecosystems.
13. Study of plant population density by quadrat method.
14. Study of plant population frequency by quadrat method.
15. To study analogous and homologous organs in various plants.

SYLLABUS FOR ZOOLOGY PRACTICAL
(Marks-15)

1. Study and identify stages of gamete development in T.S. of testis and T.S. of ovary.
2. Study of meiosis in grasshopper testis (through permanent slides)
3. Study of T.S. of blastula through permanent slide.

4. Study of Mendelian inheritance using seeds of different colours/ size of any plant.
5. Prepare pedigree charts for genetic traits such as rolling of tongue, blood groups, window's peak, colourblindness.
6. To identify common 'disease causing organisms' like Ascaris, Entamoeba, Plasmodium, Microsporum. Comment on the symptoms of the disease that they cause.
7. Collect and study soil from different sites and study them for texture and moisture content.
8. Study of animals found in dry conditions. Comment on their adaptations/ ecosystems.
9. Study of animals of aquatic conditions. Comment on their adaptations/ ecosystems.
10. Collect water from different water bodies around you and study them for pH, clarity and presence of any living organisms.
11. Study the amount of suspended particulate matter in air at the two widely different sites.
12. To study analogous and homologous organs in various animals.

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STATISTICS

SYLLABUS FOR HIGHER SECONDARY COURSE

Objectives :

The main objectives of the course are to enable students ..

a. to acquire knowledge on basic statistical concepts.
b. to acquire the skill of statistical analysis of data from real life situation in a scientific manner.
c. to acquire knowledge on the basic aspects of statistical reasoning and drawing conclusions.
d. to create an aptitude for Statistics for those students who show a promise for higher studies and creative work in Statistics.
e. to develop aptitude for applications of statistical techniques in Biological Sciences, Social Sciences, Education and Psychology.

STATISTICS

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I :	Calculus of Finite difference	20	45
Unit-2 :	Theory of Probability	40	65
Unit-3 :	Elementary Theory of Sampling and Test of Significance	25	50
Unit-4 :	Sample Survey	15	40
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Unit-1 : Calculus of Finite Difference :

Operators A and E. Construction of diagonal Difference tables. Estimation of missing values, Idea of interpretation. Statements and applications of Newtons Forward, Backward and Longranges interpolation formulae. Idea of numerical integration, General quadrature formula. Statement and applications of trapezoidal rule, Simpsons $\frac{1}{3}$ rd rule and Simpsons $\frac{3}{8}$ th rule along with the conditions under which they are derived.

Unit-2 : Theory of Probability :

Basic concepts of Random experiment, Sample point, Sample space and Event occurrence of an event, Union and intersection of events. Complement of an event. Certain and null events. Exhaustive, Mutually exclusive and equally likely events. Probability of an event. Classical, Emperical and axiomatic (without introducing idea of measure theory). Unconditional probability, conditional probability, Dependent and independent events. Addition rule of Probability, Generalized Addition rule of Probability (upto three events). Statements and application of multiplication rule of Probabilities.

Random Variable and Distribution :

Random variable; Discrete and continuous distribution of a random variable, p.mJ. and p.d.f., density function. Representation of discret probability distribution. Probability curve of a continuous distribution, Mathematical expectation of a random variable. Mathematical expectation of the function of a random variable. Theorems on expectation of the sum and product of random variables - only application (without derivation).

Idea of Barnoulli Trials; Binomial distribution; Mathematical form, occurrence of the distribution, Derivation of the distribution, Calculation of Mean and variance. Poission distribution; Mathematical form, Occurence of the distribution, derivation as a limiting form of Binomial distribution, calculation of mean and variance. Normal distribution, Mathematical form (without proof). Important properties and their applications. Derivation of distribution of standard normal variate and its applications.

Unit-3 : Elementary Theory of Sampling and Test of Significance :

Sample and Sampling. Random sampling, Parameter and Statistic.

Sampling distribution. Unbiased estimate of a parameter. Standard error of sampling mean and sample preparation for random sampling (without Derivation) - simple applications. Statistical hypothesis - Null hypothesis alternative hypothesis, Level of significance. Test (only two tailed test) for a hypothetical population mean on the basis of information supplied by a random sample drawn from a normal having known standard deviation (application only). Students 't' test (only two tailed test) for an assumed mean (examples only), Large sample test (only two tailed test) for proportion (examples only). Examples on use of frequency x^2 for testing independence of attributes in 2×2 table.

Unit-4 : Sample Survey :

Sample survey and complete enumeration. Basic principles of sample survey, validity of optimization. Principal steps in a survey, Errors in a survey. Sampling and non sampling errors. Advantage of sample survey over complete enumeration.

Simple random sampling with and without replacement - method of selection of SRS making use of Table of random number, Estimation Population mean and total, use of formula - mean and estimated population total. Limitations of SRS. Idea of stratified random sampling. Estimation of population mean (method of allocation not included). Preparation of Questionnaire and schedule. Idea of pilot survey.

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COMPUTER SCIENCE AND APPLICATION

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

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 Logic of Computing
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 Database Handling

COMPUTER SCIENCE AND APPLICATION

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

Time : 3 hours **Total Marks : 70**

Unit No.	Tittle	Marks	Periods
Unit-I	OBJECT ORIENTED PROGRAMMING IN C++	30	70
Unit-II	DATA STRUCTURE	14	30
Unit-III	DATABASE MANAGEMENT SYSTEM AND SQL	8	20
Unit-IV	BOOLEAN ALGEBRA	8	20
Unit-V	NETWORKING AND OEN SOURCE SOFTWARE	10	20
	Total	**70**	**160**
Unit-VI	PRACTICAL	30	
		100	

Unitwise Distribution of Course Contents :

UNIT 1: OBJECT ORIENTED PROGRAMMING IN C++

REVIEW: C++ covered in HS First Year classes

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, Member

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 Inheritances, Base Class, 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 Pointer; 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 structure: De-reference/Deference operator: *, ->; self referencial structure;

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):

Introduction to stack (LIFO_Last in First Out Operations) 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: DATABASE MANAGEMENT SYSTEM AND SQL

Data base 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, DROP TABLE, ALTER TABLE, UPDATE ….SET…., INSERT, DELETE; SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUPBY, HAVING, ORDERBY; 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, Boolean Variable, Boolean Constant and Boolean 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 Boolean Logic:

Digital electronic circuit design using basic Logic Gates (NOT, AND, OR, NAND, NOR) Use of Boolean operators (NOT, AND, OR) in SQL SELECT statements Use of Boolean operators (AND, OR) in search engine queries.

UNIT 5: NETWORKING AND OPEN SOURCE SOFTWARE

Evolution of Networking:

ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching);

Data Communication terminologies:

Concept of Channel, 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, Router, Switch, Gateway, wifi card;

Network Topologies and types:

Bus, Star, Tree, 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,

Mobile Telecommunication Technologies:

1G, 2G, 3G and 4G Electronic mail protocols such as SMTP, POP3 Protocols for Chat and Video Conferencing VOIP Wireless 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;

Introduction To Web services:

WWW, Hyper Text Markup Language (HTML), eXtensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; 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)

Class XII (Practical) -- C++

Duration : 3 hours **Total Marks : 30**

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 problem to be given will be of application type from the following topics

- Arrays (One dimensional and two dimensional)
- Class(es) and objects
- Stack using arrays and or linked implementation
- Queue using arrays (circular) and or linked implementation
- Binary File operations (Creation, Displaying, Searching and modification)
- Text File operations (Creation , Displaying and modification)

2. SQL Command **03**

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 **06**

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, Documentations)
- Viva

4. Practical File **06**

Must have minimum 20 programs from the following topics

- Arrays (One dimensional and two dimensional, sorting, searching, merging, deletion' & insertion of elements)
- Class(es) and objects
- Stacks 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:

5. Viva Voce **05**

Viva will be asked from syllabus covered in HS Second Year classes and the project developed by student.

Suggested reading Books

1. A textbook of Computer Science for class XI, by Seema Bhatnagar, PHI Publication
2. A textbook of Computer Science for class XII, by Seema Bhatnagar, PHI Publication
3. Computer Science with C++ Vol. I, by Sumita Arora, Dhanpat Rai & Co
4. Computer Science with C++ Vol. II, by Sumita Arora, Dhanpat Rai & Co
5. Computer Fundamentals and Programming in C, Reema Thareja, Oxford University Press

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ECONOMICS

SYLLABUS FOR HIGHER SECONDARY COURSE

Rationale :

Economics is one of the social sciences which has a lot of influence on every human being. Yet it received little attention in the school curriculum in India. 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 with opportunities to acquire analytical skills to observe and understand the economic realities. Bringing economics as an abstract knowledge in the early stages of school education would promote rote learning of the subject.

At the higher secondary stage, 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.

Economics courses are being 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 to be 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 issues which are broader and invisible in nature. The academic skills that they acquire 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 :

- ❖ Understanding of some basic economic concepts and developing economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.
- ❖ Realisation or learners' role in nation building and sensitise them to the economic issues that the nation is facing today.
- ❖ To equip learners with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond the higher secondary stage.
- ❖ To develop an understanding that there can be more than one view on any economic issue and to develop the skills to argue logically with reasoning.

The economics subject should be taught in two years at the higher secondary stage. The details of course for each semester are as follows :

H.S. First year : (i) Statistics for Economics (ii) Indian Economic Development.

H.S. Second year : (i) Introductory Microeconomics (ii) Introductory Macroeconomics

ECONOMICS

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Part-A :	**INTRODUCTORY MICROECONOMICS**		
Unit-I	Introduction	04	10
Unit-II	Consumer Behaviour and Demand	13	25
Unit-III	Producer Behaviour and Supply	15	32
Unit-IV	Forms of Market and Price Determination	10	20
Unit-V	Simple applications of Tools of demand and supply	08	12
Part-B :	**INTRODUCTORY MACROECONOMICS**		
Unit-VI	National Income and Related Aggregates	12	25
Unit-VII	Determination of Income and Employment	12	25
Unit-VIII	Money and Banking	08	17
Unit-IX	Government Budget and the Economy	12	20
Unit-X	Balance of Payments	06	14
	Total	**100**	**200**

Unitwise Distribution of Course contents :

Part-A : INTRODUCTORY MICROECONOMICS

This course introduces the learner to economics as a science of abstraction and reasoning. It introduces some basic concepts and tools to understand economic issues of an individual or a firm and how decisions are taken in variety of markets. It also intends to provide exposure to the learners on how choices are mare and how a variety of statistical tools are used to optimally allocate the resources.

Unit-I Introduction

- ❖ What is microeconomics?
- ❖ Central problems of an economy, production possibility curve and opportunity cost.

Unit-II Consumer Behaviour and Demand

- ❖ **Consumer's Equilibrium :** meaning and attainment of equilibrium through Utility Approach: One and two commodity cases.
- ❖ **Demand :** Concept of demand, determinants of demand, demand schedule, demand curve, market demand, movement along and shifts in demand curve, price elasticity of demand, measurement of price elasticity of demand– percentage, total expenditure and geometric methods.

Unit-III Producer Behaviour and Supply

- ❖ **Production function :** returns to factor and returns to scale.
- ❖ **Supply :** market supply, determinants of supply, supply schedule, supply curve, movement along and shifts in supply curve, price elasticity of supply, measurement of price elasticity of supply– percentage and geometric methods.

- ❖ **Cost and Revenue :** Concepts of costs, short-run cost curves (fixed and variable costs; total, average and marginal costs); concepts of revenue– total, average and marginal revenue and their relationship. Producer's equilibrium– with the help of MC and MR.

Unit-IV Forms of Market and Price Determination

- ❖ Forms of market– perfect competition, monopoly, monopolistic competition– their meaning and features.
- ❖ Price determination under perfect competition– equilibrium price, effects of shifts in demand and supply.

Unit-V Simple applications of Tools of demand and supply Curves

Change in cost conditions and its impact on the form's and market supply.

- ❖ Geometric method to determine the elasticity of supply.
- ❖ Effects of taxation : Per unit tax, lump sum tax
  Price ceilings and price floor.

Part-B : INTRODUCTORY MACROECONOMICS

The overall working of an economy and some of its economic theorisation are introduced in this course. The learners will get some basic idea of how the government regulates the functioning of economic aspects of a country though accounting of the production activities, running financial institutions, budgeting and the accounting of its economic interaction with other countries. The impact it will have on citizens is also briefly introduced.

Unit-VI National Income and Related Aggregates– ***Basic Concepts and Measurement***

- ❖ **Macroeconomics :** meaning.
- ❖ Circular flow of income, concepts of GDP, GNP, NDP, NNP (at market price and factor cost), National Disposable Income (gross and net); Private Income, Personal Income and Personal Disposable Income.
- ❖ Measurement of National Income– Value Added method, Income method and Expenditure method.

Unit-VII Determination of Income and Employment

- ❖ Aggregate demand, aggregate supply and their components.
- ❖ Propensity to consume and propensity to save (average and marginal)
- ❖ Meaning of involuntary unemployment and full employment.
- ❖ Determination of income and employment : two sector model.
- ❖ Concept of investment multiplier and its working.
- ❖ Problems of excess and deficient demand.
- ❖ Measures to correct excess and deficient demand– availability of credit, change in government spending.

Unit-VIII Money and Banking

- ❖ **Money :** meaning, evolution and functions
- ❖ **Central bank :** meaning and functions.
- ❖ **Commercial banks :** meaning and functions
- ❖ **Recent significant reforms and issues in Indian Banking System :** privatisation and modernisation.

Unit-IX Government Budget and the Economy

- ❖ Government budget– meaning and its components.
- ❖ Objectives of government budget.
- ❖ Classification of receipts– revenue and capital; classification of expenditure– revenue and capital, plan and non-plan and developmental and non-developmental.
- ❖ Balanced budget, surplus budget and deficit budget : meaning and implications.
- ❖ Revenue deficit, fiscal deficit and primary deficit : meaning and implications; measures to contain different deficits.
- ❖ Downsizing the role of government : meaning and implications.
- ❖ The introduction of **GST** in the Indian Economy.

Unit-X Balance of Payments

- ❖ Foreign exchange rate– meaning (fixed and flexible), merits and demerits; determination through demand and supply.
- ❖ Balance of payments accounts– meaning and components.
- ❖ A brief analysis about recent exchange rate issues.

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GEOGRAPHY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

Rationale :

Geography is introduced as an elective subject at the higher 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 contributions lie 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.

Common Core Components (NPE 1986) such as India's common cultural heritage, equality of sexes, protection of environment, observance of the small family norm and inculcation of scientific temper will be reflected in the geography syllabus.

The geography course will incorporate some issues of NCF–2005 such as making children sensitive to environment and its protection to nature and preserve the environment, and using geographical knowledge in understanding various environmental and socio-economic issues of the community, region and the country, e.g. gender and marginalised groups.

Objectives :

The course in geography will help learners :

- ❖ Familiarise themselves with the terms, key concepts and basic principles of geography;
- ❖ Search for, recognise 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 graphics 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 member of the community.

GEOGRAPHY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
A.	**FUNDAMENTAL OF HUMAN GEOGRAPHY**		
Unit-I	Human Geography	02	05
Unit-II	People	08	18
Unit-III	Human Activities	08	26
Unit-IV	Transport, Communication and Trade	07	18
Unit-V	Human Settlements	05	10
B.	**INDIA– PEOPLE AND ECONOMY**		
Unit-I	People	02	05
Unit-II	Human Settlements	04	08
Unit-III	Resources and Development	09	20
Unit-IV	Transport, Communication and International Trade	07	16
Unit-V	Geographical Perspective on Selected Issues and Problems	06	15
C.	**ASSAM– LAND, PEOPLE, AND ECONOMY**		
Unit-I	Physio graphy, drainage Climate	03	05
Unit-II	People : Composition, distribution, Density	03	05
Unit-III	Economy : Agriculture and industrial base and development	03	05
Unit-IV	Transport and Communication	03	05
D.	**PRACTICAL WORK (UNIT I AND II)**		
Unit-I	Processing of Data and Thematic Mapping	16	20
Unit-II	Field Study or Spatial Information Technology	14	20
	Total	**100**	**201**

Unitwise Distribution of Course contents :

A. FUNDAMENTALS OF HUMAN GEOGRAPHY

Unit I : Human Geography

- ❖ Nature and scope

Unit II : People

- ❖ Population of the world– 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 III : Human Activities

- ❖ Primary activities– concept and changing trends; gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agriculture and allied activities– some examples from selected countries;
- ❖ Secondary activities– concept; manufacturing : agro-processing, household, small scale, large scale; 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 qutternary activities– some examples from selected countries.

Unit IV : Transport, Communication and Trade

- ❖ Land transport– roads, railways– rail network; 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– Basis and changing patterns; ports as gateways of international trade, role of WTO in international trade.

Unit V : Human Settlements

- ❖ Settlement types– rural and urban; morphology of cities (case study); distribution of mega cities; problems of human settlements in developing countries.

B. INDIA : PEOPLE AND ECONOMY

Unit I : People

- ❖ Population– distribution, density and growth; composition of population : linguistic and religious; rural-urban population change through time– regional variations; occupation;
- ❖ Migration : international, national– causes and consequences;
- ❖ Human development– selected indicators and regional patterns;
- ❖ Population, environment and development.

Unit II : Human Settlements

- ❖ Rural settlements– types and distribution;
- ❖ Urban settlements– types, distribution and functional classification

Unit III : Resources and Development

- ❖ Land resources– general land use; agricultural land use– major crops; agricultural development and problems, common property resources;
- ❖ 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– metallic and non-metallic minerals and their distribution; conventional and non-conventional energy sources;
- ❖ Industries– types and distribution; industrial location and clustering; changing pattern of selected industries– iron and steel, cotton textiles, sugar, petrochemicals and knowledge based industries; impact of liberalisation, privatisation and globalisation on industrial location;
- ❖ Planning in India– target area planning (case study); idea of sustainable development (case study).

Unit IV : Transport, Communication and International Trade

- ❖ 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 V : Geographical Perspective on Selected Issues and Problems (One case study to be introduced for each topic)

- ❖ Environmental pollution; urban-waste disposal;
- ❖ Urbanisation-rural-urban migration; problem of slums;
- ❖ Land Degradation.

C. ASSAM– LAND PEOPLE AND ECONOMY

Unit I : Physiography, Drainage Climat.

Unit II : People : Composition, Distribution, Density

Unit III : Economy : Agriculture and Industrial base and Development

Unit IV :Transport and Communication

D. PRACTICAL WORKS

Unit I : Processing of Data and Thematic Mapping

- ❖ 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

Field visit and study : map orientation, observation and preparation of sketch; survey on any one of the local concerns : population, ground water changes, land use and land-use changes, poverty, energy issues, soil degradation, drought and flood impacts (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 and topology building; data analysis; overlay and buffer.

Note : There will be six text books, two for theory and one for practical work for each class.

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GEOLOGY

SYLLABUS FOR HIGHER SECONDARY COURSE

Objectives :

1. To explain the basic concept of Geology.
2. To acquire the fundamental knowledge of different branches of Geology with their specific importance.
3. To develop an interest to nature and its processes.
4. To develop interest towards the constitution of the Earth's crust.
5. To increase the awareness of the problems of environment due to mining and industrial activity and its remedial measures.
6. To develop an ability to use and interpret a geological map.
7. To know the importance of Geology contributing towards the national development especially the Engineering Projects.

GEOLOGY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 70**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1	Petrology	20	35
Unit-2	Indian Stratigraphy	15	25
Unit-3	Economic geology	15	30
Unit-4	Ground Water and Engineering geology	10	25
Unit-5	Palaeontology	10	25
	Total	**70**	**140**

Unitwise Distribution of Course contents :

Unit-1 Petrology :

Rocks, its definition and types (igneous, sedimentary and metamorphic), their distinguishing characters.

(i) Igneous: Its definition and composition, Forms of igneous rock. Differentiation of magma. Texture and structure of igneous rock. Texture (Porphyritic, Poikilitic, Ophitic, Coarse, Fine and Glassy). Structure (columnar, flow, pillow, vesicular, sheet, amygdaloidal). Classification of igneous rocks on the basis of texture, mineralogical composition and color. Study of the following rocks with respect to their mineralogical composition and texture:-Granite, Pegmatite, Rhyolite, Gabbro, Dolerite, Basalt.

(ii) Sedimentary: Texture and structure of sedimentary rocks. Processes of formation of sedimentary rocks. Study of the following rocks:- Conglomerate, Grit, Sandstone, Shale, Lime stone.

(iii) Metamorphic: Definition, agents and types of metamorphism. Depth zones of metamorphism (epizone, mesozone, katazone). Study of the following rocks with respect to their mineralogical

composition and texture and structure:- Schist, Gneiss, Marble, Slate and Quartzite.

Unit-2 : Indian Stratigraphy :

Precambrian and Mesozoic stratigraphy ofN.E. India. Precambrian of Kamataka and Vindhyan. An outline of the tertiary stratigraphy of the N.E. with emphasis on its lithology, paleontology and economic importance.

Unit-3 : Economic Geology :

Definition of ore. Elementary idea of the processes of formation of mineral deposits. Origin and mode of occurence of coal and petroleum. Mode of occurence, distribution in India and uses of the following in the N.E.- Coal, Petroleum, Silliminite, Limestone.

Unit-4 : Ground Water and Engineering Geology :

Ground Water : Definition, elementary idea of hydrologic cycle, porosity, permeability, aquifers, water table.

Engineering geology : Selection of bridge site and Dam site, Flood- its geological causes, prevention with a view to proper utility.

Unit-5 : PALEONTOLOGY :

Fossil : Definition, mode of preservation, uses. An outline of the important forms of life (plant and animal) through geological ages. A brief morphological study of the phylum/class Brachiopoda, Lamellibranchia and Gastropoda.

SYLLABUS FOR GEOLOGY PRACTICAL

Total Marks- 30

Unit-1 : Crystallography : **Marks 3**

Symmetry elements, Identification of the crystal forms of the normal class of the isometric, tetragonal and hexagonal system with their general symbols.

Unit-2 : Measurements : **Marks 4**

Measurement of specific gravity of minerals. Determination of hardness of minerals using Moh's scale of hardness.

Unit-3 : Identification : **Marks 6**

Identification of the following Minerals :

Quartz, Orthoclase, Microcline, Garnet, Calcite, Muscovite, Biotite, Tourmaline, Galena, Haematite, Pyrite, Magnetite, Malachite, Bauxite, Silliminite, Asbestos, Cuprite, Gypsum, Hornblende, Kyanite.

Identification of the following Rocks : **Marks 6**

Granite, Basalt, Pegmatite, Dolerite, Sandstone, Limestone, Conglomerate, Quartzite, Marble, Slate, Granite-gneiss, Biotite-schist, Muscovite-Schist, Amphibolites.

Unit·4 : Drawing and interpretation of simple Geologic Maps. **Marks 8**

Unit-5 : Specimen collection and Laboratory note book. **Marks 3**

Total Periods 50 each of 45 minutes duration.

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ANTHROPOLOGY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Three Hours** **Marks 70**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I :	Physical Anthropology (ii)	15	30
Unit-2 :	Pre historic Archaeology (ii)	15	30
Unit-3 :	Material Culture and Economic Anthropology	10	20
Unit-4 :	Social Anthropology and Ethnography	20	40
Unit-5 :	Ecology	10	20
	Total	**70**	**140**

Unitwise Distribution of Course contents :

Unit-1 : Physical Anthropology (ii) :

(i) Preliminary knowledge of Human genetics. Mendel's Laws of heredity Monohybrid and Dihybrid ratio.

(ii) Definition of Race and Racial criteria, significance of skin colour, Eye form and colour, Head form, and ABa blood groups as racial criteria.

(iii) Racial classification, distinctive physical features and geographical distribution of the major racial groups of man: Caucasoid, Mongoloid, Negroid and Australoid.

Unit-2 : Prehistoric Archaeology (ii) :

(i) Tool Making: Techniques of manufacturing core and flake tools, primary and secondary flaking, pressure flaking, grinding and polishing. Materials used in making prehistoric tools.

(ii) Tool families: Pebble tools, Hand axe, Cleaver, Scrapers, Microliths, Points, Blades, Awl, Graver, Celts, Sickles, Spear-head, Arrow-head and Bone tools.

(iii) Prehistoric Cultures: A brief outline of the following prehistoric cultures of the Paleol ithic, Mesolithic and Neolithic periods-

(iv) A comparative study of the salient features of Paleolithic and Neolithic cultures.

Unit-3 : Material culture and economic Anthropology :

(i) Economic life: meaning and aspects, characteristic features of primitive or simple economic system.

(ii) Subsistence economy: domestication of animals-pastoralism, agriculture-shifting cultivation, horticulture, terrace cultivation and plough cultivation.

(iii) Brief outline of the methods of hunting, fishing and agriculture with reference to Various communities of North East India as far as practicable.

Unit-4 : Social Anthropology and Ethnography :

A : Social Anthropology :

(i) Family: Definition, forms and types: nuclear family, joint family, family of orientation, family of

procreation, monogamous and polygamous (polygynous and polyandrous).

(ii) Clustered relationship in nuclear family.

(iii) Rules of residence: Patrilocal, matrilocal, neolocal, avancolocal, bi-local, matripatri local. Rules of descent: Patrilineal and matrilineal descent.

(iv) Functions of family, social natue of family.

B : Ethnography :

(i) A brief outline of the land and people of North-East India.

(ii) Study of material culture and economic life of the following communities
The Garo : Shifting or Jhum cultivation.
The Mishing : Plough cultivation

(iii) A study of social organization of the Ao Naga and the Apatani.

Unit-5 : Ecology :

(i) Meaning and definition of ecology and environment.

(ii) Elements of environment: Solid, liquid, and gas.

(iii) Physical or abiotic environment, biological or biotic environment and sociocultural environment.

(iv) Man as the main agent to disturb the ecological balance.

SYLLABUS FOR ANTHROPOLOGY PRACTICAL

Time : Three Hours **Total Marks- 30**

Unit-I: Physical Anthropology: **15 Marks**

A. Osteology :

(i) Introduction to the subject

(ii) Study and acquiring knowledge of anatomical position of the following Human bones-
Frontal, Occipital, Parietal, Temporal, Mandible, Humerus, Radius, Ulna, Scapula, Innominate, Femur, Tibia, Fibula.
Students are required to draw the above bones (one each) proportionately Labeling the important features and to describe them.
Side identification of the following bones are to be made:Parietal, Scapula, Innominate, Femur.

Unit-2 : Social Survey: **15 Marks**

(a) Students are to be given very preliminary idea on anthropological field work and social survey in the classroom. The survey schedule to be used shall be explained to them.

(b) The students are required to collect demographic data by using the survey schedule given in annexure "A" (at least 10 families each) in a neighboring area and the teacher/ teachers accompanying them will teach them the technique of collecting such data.

(c) The collected data are to be tabulated, analyzed under the following heads:

(i) Age -sex distribution (taking age group of five years starting from 0 to 80)

(ii) Marital status (showing married, widow/ widower, divorced/ divorcee and unmarried)

(iii) Family type (primary family, joint family, polygamous family)

(iv) Educational standard.

(v) Occupation (showing primary and subsidiary)

Students are to prepare a model table for each of the above heads and fit/tabulate their data in them. Each table is to be followed by a short analysis of the same.

(d) The survey schedules used by the students are to be varified and corrected by the teachers and the same are to be submitted along with the analysis of the survey data at the time of examination.

Distribution of Marks in Practical Examination

1.	Osteology	10
2.	Note book on osteology	3
3.	Viva Voce	2
4.	Social Survey	10
5.	Viva Voce on Social Survey	5
	Total	30

ANNEXURE : A
DEMOGRAPHIC SURVEY SCHEDULE

Serial No.....
House hold No.....
Investigator.....
Date.....

Tribe/Caste/Community.....
Religion.....

Name of the Informant.....
ViII/Town.....
Police Station.....
District.....

SI No	Name of the family members	Sex	Age	Place of birth	Relation with head of the family	Mother tongue	Second-ary language	Education	Ocupation		Marital status	Remark
									Primary	Secondary		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

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HOME SCIENCE

SYLLABUS FOR HIGHER SECONDARY COURSE

Home Science as a discipline aims to empower learners by developing an understanding in four different areas namely :

Food and Nutrition

Human Development

Community Resource Management and Extension

Fabric and Apparel Science

Objectives :

The Syllabus at senior secondary level will help the learners to develop an understanding that the knowledge and skills acquired through the subject Home Science facilitates development of self, family and community. It endeavours to –

- ❖ acquaint learners with the basics of human development with specific reference to self and child.
- ❖ help to develop skills of judicious management of various resources.
- ❖ enable learners to become alert consumers.
- ❖ impart knowledge of nutrition and life styles to enable prevention and management of disease and also to inculcate healthy food habits.
- ❖ help to develop an understanding of textiles for selection and care of clothes.

HOME SCIENCE

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper (Theory) **Three Hours** **Marks 70**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-I	Know Little Children	17	36
Unit-II	Nutrition for Self and Family	16	34
Unit-III.	Money Management and Consumer Education	16	34
Unit-IV	Our Apparel	16	34
Unit-V	Home Science : Its applications	5	16
	Total	**70**	**154**

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

Concept of Pre-natal period : Concept; Stages of Prenatal Development Characteristics of baby-hood.

Some specific characteristics : Physical Development height, Weight, body proportions; Motor development during 0-3 months, 3-6 months, 6-9 months, 9-12 months and 1-3 years (Mile stones only); Social and emotional developments recognition of people around; Socialization, expression of emotions; Cognitive development; Stages of Cognitive Development.

Protection from preventable diseases : Defination of Disease, Different types of Childhood diseases and how they spread, Immunity and Immunization– concept and types (natural and acquired), breast feeding (One of the ways to develop natural immune) immunization chart symptoms of childhood diseases– TB, DPT, Polio, measles, cholera, diarrhoea.

Special needs of disadvantaged and disabled children : Concept defferent needs of children causes, Type of disabilities (Handicap)– Physical Neurological, Social Maladjustment Defect characteristics and needs.

Substitute care at little children : Concept, Diffrent needs of children Kinds of Substitute child care, ICDS– Objective and functions.

Unit-II : Nutrition for Self and Family

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, including children, pregnant women, lactating mother, members suffering from fever and diarrhoea; role and preparation of O.R.S.

Ways to ensure good health for the family : Water for Health, Function, Qualities, household method of making water safe for drinking– Chemical, Physical, Mechanical, Food adulteration– definition and meaning of food adulteration as given by PFA Common adulterants of different food stuff, Simple test for detection of the Adulteration ill effects of some of the adulterants present in the food, Kesari dal, metanil yellow, argemone seed.

Unit-III : Money Management and Consumer Education

Family finance/ Management of family finance and consumer Education.

Family Income : Definition, Types, Sources of family income supplementing family income need and ways.

Management of family income : Planning family budget– Objectives, importance, steps in planning budget. Types of budget, Record Keeping– Meaning, needs and importance procedure.

Savings and Investment : Meaning and importance of savings, investment– Institutions for savings and Investment banks, post-office, LIC, Units, P.P.F., P.F; – Basis for selection of method of investment– risk, security, profit, tax saving.

Consumer Protection and Education : Meaning, Rights Duties and Responsibilities, problems faced by consumer, Consumer Protection Act (1986) and Services; Consumer aids; Labels, standardization marks, advertising, guide books/ leaflets, consumer redresses forum.

Unit-IV : Our Apparel

Clothing and its relation to personality : Elements of design– line, form, colour, texture, light; Principles of design : balance, rhythm, proportion, harmony emphasis; Factors influencing selection of clothes– Personality, age, climate, occupation, figure, occasion, fashion; purchase of fabrics– Purpose, quality, cost, season and Reliable shops (buying place).

Selection of Readymade Garments : Body measurement– needs and method; quality of Garment and Good Workmanship. Fabric, drape, design, seams, hem plackets and Pleats, Fasteners etc.

Care of clothes : General Principles and methods of washing, removing stains, finishing, cleaning, agents : Soap and detergent. Water, Storage of clothes– Importance, general rules and methods.

Unit-V : Home Science : Its applications

Knowledge of Home Science and its application in everyday life–

Application of skill learnt through Home Science for supplementing family income– Needs and ways. Home Science related Vocations and careers.

Home Science as a subject in schools, college and institute– High School level, Higher Secondary level, College level, University, Institute provide certificate & Diploma ITI and Institution providing through Distance Education.

SYLLABUS FOR HOME SCIENCE PRACTICAL

Time: 3 Hours **30 Marks**

Unit		Marks	Periods
Unit-I	Know Little Children	04	08
Unit-II	Nutrition for Family	08	15
Unit-III	Family Finance and Consumer Education	03	08
Unit-IV	Our Apparel	08	15
Unit-V	Application of Home Science	05	
	Viva	02	
	Total	**30**	**46**

Unitwise Distribution of Course contents :

Unit-I : Know Little Children

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 working mothers to find out their arrangements of substitute care in their children in their absence.

Practical : Prepare a chart of mile stones and a chart for immunization of a child.

Unit-II : Nutrition for Family

Practical : Plan meals for the family and carry out modification to suit an individual suffering from fever or diarrhoea, Pregnant and lactating mother. Prepare one dish only.

Practical : Preparation of oral dehydration solution.

Practical : Simple tests for checking adulteration in common food item (any three) Cereals, Pulses, Milk, Tea leaves Red chillies, Haldi powder, Black Pepper.

Unit-III : Money management and Consumer Education

Activity : Find out the procedure of opening an account in a bank and post office and collect forms.

Practical : Fill up the forms of bank/ post office.

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

Practical : Prepare one label each for three items or product bearing different standardization marks.

Unit-IV : Our Apparel

Practical :

(a) Make a sample of (any three) basic stitches and seams.

(b) Make a sample of Fasteners– buttons & hooks.

Or Make an apron and incorporate all the above (a, b)

Activity : Examine quality in ready-made garments.

Practical : Removal of stains of (any three) Tea, Curry, Grease, Ball point-ink, lipstick, blood.

Practical : Make a soap/ detergent (Liquid/ Powder/ Cake) (any one)

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LOGIC AND PHILOSOPHY

SYLLABUS FOR HIGHER SECONDARY COURSE

Objective :

Philosophy enquires into the meaning and significance of life and the world. It is called a second order discipline in so far as it enquires into the foundations and presuppositions of various disciplines. Logic is a science which deals with forms of arguments. In an extended sense, it studies the methodology of deductive as well as inductive science. Modern logic is a fastly developing science and it is closely related to mathematics. It does not cancel the Aristotelian logic but points out its limitations. So in the syllabus, we intend to acquaint the students with the elements of traditional logic, modern logic and scientific method. The syllabus will also acquaint students with a few essential problems of Western and Indian Philosophy.

LOGIC AND PHILOSOPHY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

		Marks	Periods
	GROUP-A : LOGIC (Marks-60)		
Unit-1	Induction, its kinds	15	30
Unit-2	Grounds of Induction	15	30
Unit-3	Hypothesis and its kinds	15	30
Unit-4	Mill's Methods of Experimental Enquiry	15	30
	GROUP-B : PHILOSOPHY (Marks-40)		
Unit-5	Realism– Native Realism	10	20
Unit-6	Idealism– Subjective Idealism	10	20
Unit-7	Ethics– Its meaning and Nature	10	20
Unit-8	Religion– Its meaning and Nature, Religion and Morality	10	20
	Total	**100**	**200**

Unitwise Distribution of Course contents :

GROUP-A : LOGIC (Marks-60)

Unit-1 : Induction : **15**

Its kinds– Scientific Induction, Unscientific Induction and Analogy

Unit-2 : Grounds of Induction : **15**

Formal ground and Material ground,

Paradox of Induction

Unit-3 : Hypothesis and its Kinds, : **15**
Conditions of valid Hypothesis

Unit-4: Mills Methods of Experimental Enquiry : **15**

GROUP-B : PHILOSOPHY (Marks-40)

Unit-5 : Realism : **10**
Native Realism and Scientific Realism

Unit-6 : Idealism : **10**
Subjective Idealism and Objective Idealism.

Unit-7 : Ethics– Its meaning and Nature,
Object of Moral judgment **10**

Unit-8 : Religion– **10**
Its meaning and nature, Religion and Morality.

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ENGINEERING DRAWING

SYLLABUS FOR HIGHER SECONDARY COURSE

OBJECTIVE :

- ❖ To enable the student to understand and develop clear concept and perception of form, proportion and purpose and connect these to daily life phenomenon.
- ❖ To enable the student to develop the skill of expressing the two-dimensional and three-dimensional objects into professional language and vice versa.
- ❖ To enable the student to acquire to readily draw neat sketches often needed in "on-job-situations".
- ❖ To prepare the student to develop a clear understanding of plane and solid geometry and to some extent machine drawing so as to apply the same in relevant practical fields such as technology and industry
- ❖ To enable the student to acquire speed and accuracy in use of drawing instruments,
- ❖ To equip the student to apply theoretical knowledge of graphics fruitfully in other areas in the future.

CURRICULUM FOR +2 STAGE IN SCIENCE & ARTS

Infrastructure :

(a) SPACE : $2m^2$/ Student

(b) **FURNITURE :**

(i) One Drawing board for each student (700×1000, Thickness = 25 mm) of well-seasoned soft wood.

(ii) The black board measuring 1.5m × 3 m.

(iii) A typical almirah to keep the drawing sheets and other accessories required for drawing.

(c) **DRAWING TOOLS FOR STUDENTS**

(i) T-square

(ii) Set-square (30°/ 60° & 45°)

(a) 30°/ 60° -set square of 25 cm length.

(b) 45° set square of 20cm length.

(iii) Protractor- Circular on semicircular of 100 mm diameter.

(iv) DRAWING INSTRUMENT BOX, CONTAINING

(a) Large-size compass with inter-changeable pencil and pen legs.

(b) Large size divider.

(c) Small bow pencil.

(d) Small bow pen

(e) Small bow divider.

(f) Lengthening bar.

(g) Inking pen.

(v) SCALES : Made of wood, steel celluloid or plastic
15 cm long and 2 cm wide or, 30 cm long and 3 cm wide fiat scales are in common use.

(vi) French curves:

(vii) Drawing paper:
(viii) Drawing pencils:
(ix) Rubber eraser:
(x) Drawing pins:
(xi) Small-paper-block.
(xii) Duster

BOOKS RECOMMENDED :

1. Engineering Drawing: by N.D.Bhatt and V.M. Panchal ISBN-81-85594-58-9. Publication : CHAROTAR PUBLISHING HOUSE.
2. Engineering Graphics; by A.M.Chandra and Satish Chandra, Publication : NARORA

ENGINEERING DRAWING

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper (Theory)

Three Hours **Marks 50** **Periods 90**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1	Pictorial drawing ,isometric sketching, isometric projection of solids.	10	18
Unit-2	Graphical representation of information	8	12
Unit-3	Orthographic projection of machine blocks and machine elements.	10	21
Unit-4	Thread profiles	4	9
Unit-5	Screwed fastenings	3	9
Unit-6	Rivets	3	9
Unit-7	Free hand sketch of bearing rod-joint pipe joint Couplings, pulleys, keys, gears, screw jack.	12	12
	Total	**50**	**90**

Unitwise Distribution of Course contents :

Unit-1 Pictorial drawing (isometric sketching) of cubes, rectangles (simple variation), circles and irregular curves, objects having planes all parallel to the corresponding pictorial planes, objects in planes which are not parallel to them, corresponding pictorial planes, objects having hole, cylindrical feature or rounded corners, dimensioning, free hand pictorial drawing from models and multi view projection drawings.

Unit-2 *Graphical representation of information :* Bar charts, pie charts, rectilinear chart, triangular chart, polar charts, semi-log and log-log graphs, Nomography, concurrency charts, alignment charts, BIS and ISO conversion.

Unit-3 *Orthographic projection :* Orthographic projection of standard machine elements. Conversion of pictorial views into orthographic views and vice-versa (1^{st} and 3^{rd} angle projection systems) Sectional views.

Unit-4 Thread profiles for (i) for power transmission, for fastenings (ii) ISO Metric screw thread profile IS-4218, (iii) B S W, BSF, BSP, BA (iv) IS-2643, IS 554, etc. (v) unified thread, (vi) knuckle thread.

Unit-5 *Screwed fastenings :* (i) Sectional representation of external and internal threaded assembly (IS-696), (ii) Hexagonal and square nut and bolt, their proportional dimensional standards, (ii) Different types of bolts and nuts as used in practical fields and screw head.

Unit-6 Rivets: (i) Sanap head, pan head, Flat countersunk head (60), (ii) Joints lap, butt, double riveted double strap butt joint, (iii) Zigzag riveting offset full section, (iv) proportions.

Unit-7 Free hand sketch of bearing, rod-joint, pipe-joint Couplings, pulleys, keys, gears, screwjack.

SYLLABUS FOR ENGINEERING DRAWING PRACTICAL

One Paper (Practical) Three Hours **Marks 50 (Total Periods 75)**

Part-A

To perform the following jobs from the two given views of the prescribed machine blocks (two)		**Marks**
1.	Copy of the given views	5
2.	Drawing the missing view with hidden lines	5
3.	Sketching the Isometric view without hidden edges	10

Part-B

1.	Drawing of Bar charts, Pie charts, rectilinear chart, triangular chart polar charts, semi-log and log-log graphs, Nomography, ... charts, alignment charts from a given problem. (9 Periods)	5
2.	Drawing of different of thread profiles as prescribed in the theory part. (9 periods)	5
3.	Drawing of sectional view of assembly with screwed fosterlings Involving nuts and bolts. (9 Periods)	5
4.	Drawing of sectional view of different types of rivets as prescribed in the theory. (9 Periods)	5
5.	Free hand drawing of bearing. Rod-joint, pipe, couplings ..... keys, gears, screw jack. (15 Periods)	10

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MULTIMEDIA AND WEB TECHNOLOGY

SYLLABUS FOR HIGHER SECONDARY COURSE

Objectives :

1. To get proficiency in Handling Computer Networks and the web.
2. To get proficiency in creating and Managing Web site.
3. To be able to write server & client scripts.
4. To design Graphical images using Image-Editing tools.
5. To get proficiency in audio & video capture and editing using software tools.
6. To get proficiency in creating presentation with Audio and Video clips.
7. To become an entrepreneur in IT field.

MULTIMEDIA AND WEB TECHNOLOGY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper (Theory)

Time : Three Hours **Marks 70** **Periods 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks Theory	Marks Practical	Periods Theory	Periods Practical
Unit-1	Advanced Computer System	10		20	08
Unit-2	Advanced Networking	10		20	06
Unit-3	Advanced Web Technology	25	15	50	18
Unit-4	Multimedia Authoring Tools	25	10	50	18
	Viva Voce		05		
	Total	**70**	**30**	**140**	**50**

Unitwise Distribution of Course contents :

Unit-1 : ADVANCED COMPUTER SYSTEM :

Database Terminology : Data, Record/ Tuple, Table, Database

Concept of Keys : Candidate Key, Primary Key, Alternate Key and Foreign Key;

Database Tool : Using MS-Access, Creating and Saving Table, Defining Primary Key, Inserting and Deleting Column, Renaming Column, Inserting records, Deleting Records, Modifying Records, and Table Relationship

Introduction to RDBMS : Various types or RDBMS

Introduction to SQL

Creation of database, tables and views

Introduction to Stored Procedures, and Triggers

Backup and Restoring of database

Introduction of replications

Connecting to a back end database using connection string and other ways.

Unit-2 : ADVANCED NETWORKING :

Internet Protocol (IP) : IP Classes, IPV4, lPV6, CIDR, Subneting.

Mobile Computing/ Communication, GSM, CDMA, WLL, SMS, Chat, Video Conferencing.

Network Security concepts : Firewall, Cyber law, Encryption/decryption.

Unit 3 : ADVANCED WEB TECHNOLOGY :

Review of HTML/ DHTML/ XML

WEB-Server : Internet Information Server (IIS) / Personal Web Server (PWS)/Apache Server

Active Server Pages (ASP) : Concept of ASP, features of ASP, other equivalent tools– JSP, PHP;

Constants : String and Numeric ;

Data types : lnteger, Floating Point (Single, Double), String, Date, Boolean, Currency, Variant, Object;

Variables : Explicit and Implicit Declaration;

Operators :

Arithmetic : +, - (Unary and Binary), *, /, \(integer division) mod, ^;

Comparison : <, >, <=, >=, <>, =;

Logical : AND, OR, NOT, XOR, EQV, IMP;

String Operator : & or + (for Concatenation);

Functions :

Conversion functions: Abs(), CBool(),, CByte(), Clnt(), 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 I dimensional and 2 dimensional arrays;

Controls : 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);

Objects : Properties, Methods, Events, Setting Object properties, Retrieving Object properties, calling objects/methods;

Types of Objects : Response, Request, Application, Session, Server, ASPError;

Response Object : Write Method, AddHeader, AppendToLog, Binary Write, Using Shortcuts <%=value/expr%>, Controlling information : Buffer, Flush Clear, End;

Request Object : Request Object Collection : QueryString, Form, Server Variables, Cookies, Client Certificate;

Application : Contents, Lock, Unlock, Remove, RemoveAll;

ASP Components : AD Rotator, Content Rotator, Counter, Page Counter, Permission Checker;

Text Files : Open and Read content from a text file;

Elementary Database Concepts : Concept of Table/Relation, Relationship, Candidate Key, Primary

Key, Alternate Key, Foreign Key, Connecting with Databases : Creation of DSN, using OLE DB.

Working on Database : Inserting, Retrieving, Modifying/Updation of records from Tables in Databases using server objects (ADODB. Connection, ADODB. Recordset);

Server Variables : HTTP_User_Agent, REMOTE_ADDER, REMOTE_HOST, SERVER_NAME;

Unit-4 : MULTIMEDIA AUTHORING TOOLS :

Movie File Formats : AVI, MPEG, SWF, MOV, DAT;

Movie Frames : Concept or Frame, Frame Buffer and Frame Rate;

Authoring Tools; Making Animation, Embedding Audio/Video, and Embedding on the web page;

Multimedia Authoring Using Macromedia Flash

Making of Simple Flash Movie, Setting Properties, Frame Rate, Dimensions, and Background Color;

Scene : Concept of Scene, Duplicate Scone, 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; Frame : Concept or Frame;

Creating a Key Frame, 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, Color effect, Inserting Sound Layer; Testing a Scene and Movie;

Import/ Export (Movie/Sound and other multimedia objects)

Publishing : 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.

SYLLABUS FOR MULTIMEDIA AND WEB TECHNOLOGY PRACTICAL

Total Marks : 30

1. Advanced Web Technology : Marks-15

A website, based on a particular topic, has to be developed by each student using various commands covered in HTML, VB Script 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. Multimedia : Marks-10

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 .

4. Viva Voce : Marks-5

Five questions from topics covered in the curriculum

Reference Books :

1. HTML Complete– Sybex (BPB)
2. Mastering HTML 4 Premium Edition– Ray (BPB)
3. HTML Example Book– Farrar (BPB)
4 Mastering WEB DESIGNING– Maccoy (BPB)
5. Inside Adobe Photoshop 6– Bouton (BPB)
6. Multimedia on the PC– Sinclair (BPB)
7. Multimedia Magic– Gokul, S (BPB)
8. Mastering CorelDraw 9– Altman (BPB)
9. CorelDraw 9 - Training Guide– Lotia, M (BPB)
10. Effective Web Design– Navarro (BPB)
11. ASP, ADO and XML Complete– Sybex (BPB)
12. Mastering Active Server Pages 3– Russell (BPB)
13. Inside Flash 5– Kea thing (BPB)
14. MP3 Complete– Hart (BPB)
15. Computer Science Vol-I by P. H. Talukdar & Utpal Bhattacharjee.
16. Computer science and Applications vol-II, by P.H. Talukdar and Mr S. Kalita.

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BIOTECHNOLOGY

SYLLABUS FOR HIGHER SECONDARY COURSE

Biotechnology, in its broadest sense, is the technology that provides goods and services by industrial processes using biological organisms, systems and processes. It comprises a number of technologies based upon increasing understanding of biology at the cellular and molecular level. The techniques of biotechnology includes recombinant DNA technology (genetic engineering), hybridoma technology and monoclonal antibody preparation, cell and tissue culture, DNA fingerprinting, protoplast fusion, protein engineering, immobilized enzyme technology, cell catalysis, biosensor and several others. Biotechnology has emerged as one of the frontline technologies in recent times. Biotechnology with its most recent offshoot Bioinformatics is being projected as the technology that would have the greatest impact in the coming years worldwide.

With the exponential growth of human population, it becomes urgent to improve the production process and capabilities for the increased production of food, fuel, medicine, enzymes, fermented items, fibers, vaccines and biofertilizers. It also becomes important to ensure protection, conservation and sustainable utilization of our natural resources. Biotechnology has the answer for these problems. Application of biotechnology has been proved to be fruitful for meeting the need of the modern human society,

Inclusion of Biotechnology in higher secondary level courses is considered as important to create a base and interest among the students for higher education, training and research in Biotechnology. In view of this the present syllabus is designed to cater needs of the Biotechnology education for the higher secondary students of Assam. The theoretical topics and experiments are selected and organized such a way so that the students can earn basic concept and interlink the various topics and techniques. It is expected that the student will gain appropriate knowledge and acquire practical skill on the subject. It is also anticipated that the course will make the students competent to meet up the challenges of both academic and professional courses beyond the secondary level.

Objectives :

The objectives of teaching Biotechnology at Higher Secondary level are :

1. To create an interest among the students of H.S. Classes to study Biotechnology courses.
2. To help the students to know and acquire basic information and concept in the subject.
3. To expose the students to understand the basic techniques and their utilization in various production and service industries.
4. To familiarize the learners to understand the importance and applications of Biotechnology in everyday life.
5. To develop conceptual competence of the students so as to cope-up with technical and professional in future carrier.

BIOTECHNOLOGY

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper **Time : Three Hours** **Total Marks-70**
Pass Marks-21

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks	Periods
Unit-1	Protein Engineering and Bioinformatics	15	23
Unit-2	Genetic Engineering and genomics	15	32
Unit-3	Environmental Biotechnology & Bioethics	10	20
Unit-4	Microbial Technology	10	25
Unit-5	Plant Cell Culture Technology	10	25
Unit-6	Animal Cell Culture Technology	10	25
	Total	**70**	**150**

Unitwise Distribution of Course contents : **Marks**

Unit-1 : Protein Engineering and Bioinformatics : **15**

Protein based products and designing
Proteins
Proteomics : an introduction
Introduction to Bioinformatics
Sequences and Nomenclature
Information Sources
Analysis using Bioformatics tools

Unit-2 : Genetic Engineering and Genomics : **15**

Recombinant DNA technology-definition and tools
Making recombinant DNA
Construction of DNA library :
Genomic and CDNA
Cloning vectors
Polymerase Chain Reaction (PCR)
DNA probes
Hybridization techniques : Southern, Northern and Western
DNA sequencing
Genomics : an introduction

Unit-3 : Environmental Biotechnology & Bioethics : **10**

Bioremediation of oil pollution reducing environmental impact of chemical herbicides & fertilizers; biosensors to detect environmental pollution.

Biofertilizers-definition and uses.
Biofuels : definition and application
Genetically Modified Organisms and
Ethical Issue
Intellectual Property Rights-Patenting Life forms

Unit-IV : Microbial Technology **10**

Classification of microorganism
Microbial culture techniques
Measurement and kinetics of microbial growth
Strain Isolation and Isolation of microbial products
Application of microbial culture

Unit-V : Plant cell culture Technology **10**

Introduction; Cellular Toti potency
Plant cell and tissue culture techniques and media
Application of plant tissue culture
Gene transfer methods in plants
Transgenic plants for crop improvement

Unit-VI : Animal Cell Culture Technology **10**

Introduction
Animal Cell Culture Technology and media
Characterization of cell lines
Scale up of animal cell culture process
Application of animal cell culture
Stem cell technology

SYLLABUS FOR BIOTECHNOLOGY PRACTICAL

Total **Marks-30**

Scheme of Evolution : **Marks**

1. Two Experiments 8 + 8 = 16

(One computer based Practical)

- ❖ Data retrieval and data search using Internet site of NCBI
- ❖ Download a DNA protein sequence from Internet, analyze and comment over it
- ❖ Ion-exchange chromatography for protein
- ❖ Estimation of DNA
- ❖ Isolation of microbes from a given biological sample
- ❖ Sterilization techniques : Dry heat and moist heat sterilization, Chemical sterilization and ultra filtration
- ❖ Determination of bacterial growth curve

- ❖ Determination of blood groups
- ❖ Estimation of blood glucose by enzymatic method
- ❖ Demonstration of plant tissue culture technique
- ❖ Isolation of bacterial plasmid DNA and its detection by gel electrophoresis
- ❖ Minor project work/Seminar

2. Viva on practical 4

3. Practical Record 4

4. Seminar/Minor project 6

Recommended Books

1. CBSE publication for class XI and XII

ANNEXURE

Laboratory Requirements :

A. Must include the following components for Laboratory:

(a) One small lab with Laminar Air flow cabinete and Single working desk

(b) Working Laboratory with working table & Chairs, Washing facilities, light arrangement.

(c) Essential equipments : Autoclave, oven, Refrigerators, Incubator, Water distillation, Centrifuge.

(d) Glassware's, measuring equipment etc.

(e) Small Culture room (air conditioned) and culture racks.

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ENTREPRENEURSHIP DEVELOPMENT

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

Introduction : Introducing of Entrepreneurship in the course curriculum of class XI & XII of Assam Higher Secondary Education Council is the need of the hours. Students are the potential sources of entrepreneurs of the future. The process of entrepreneurship will effectively imbibe a positive mindset among the budding students. Realizing the need and importance of entrepreneurship in the formal education system, the entrepreneurship curriculum has been designed keeping in mind of the following objectives.

Objectives :

- ❖ To make students aware about need and importance of entrepreneurship in the changing scenario.
- ❖ To encourage the self-analysis (thinking) process.
- ❖ To generate a spirit of work and self-employment.
- ❖ To develop attitudes, interest and values among the students towards entrepreneurship development and its contribution in the growth of individual as well as nation building.
- ❖ To enable them to make realistic choice of entrepreneurship activities.
- ❖ To promote entrepreneurship as a career option.
- ❖ To enable them to launch, manage and grow an enterprise.

ENTREPRENEURSHIP DEVELOPMENT

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One Paper Time : Three Hours **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Title	Marks		Periods	
		Theory	Practical	Theory	Practical
Unit-1	Importance and launching of an enterprise	20	-	40	-
Unit-2	Project implementation	20	-	35	-
Unit-3	Managing Enterprise	20	-	35	-
Unit-4	Review of Govt. Policies and Act	10	-	30	-
		70	**30**	**140**	**50**

Unitwise Distribution of Course contents : **Marks**

UNIT-1 : IMPORTANCE AND LAUNCHING OF AN ENTERPRISE **20**

- ❖ SME sector and its role in economic development.
- ❖ Enterprise and its classification.
- ❖ Identification of the project.
- ❖ Enterprise planning & business module formulation.
- ❖ Preparation of detail project report (DPR).

UNIT-2 : PROJECT IMPLEMENTATION : **20**

- ❖ Sources of assistance available :
  - (i) Promotional
  - (ii) Financial
  - (iii) Technical
  - (iv) Marketing
- ❖ Market strategy
- ❖ Project funding
- ❖ Input on resource mobilization.
- ❖ Registration, licensing and other legal formalities.

UNIT-3 : MANAGING ENTERPRISE **20**

- ❖ Management : Concept & process
- ❖ Financial management :
  - (i) Term finance
  - (ii) Short term finance
  - (iii) Cost of production & pricing
- ❖ Marketing management :
  - (i) Channel of distribution
  - (ii) Sales promotion technique
  - (iii) Product mix
- ❖ Human resource management.
- ❖ Operational management.
- ❖ Record & Account management.

- ❖ Taxation (Income tax/ VAT, CST, Excise duty etc.)

UNIT-4 REVIEW OF GOVERNMENT POLITICS AND ACT : 10

- ❖ Industrial policies (since liberalization, 1991).
- ❖ MSME Act 2006

EVALUATION : 30

- ❖ **Internal Assessment : (Practical)** Preparation of individual bankable project report, Case Study on successful as well as unsuccessful entrepreneur, industrial profile, performance of local SME, marketing strategies of consumer durable etc.
- ❖ **External Assessment : (Theory)** Written examination on the content of **UNIT-1 to 4**. Marks of each **UNIT** should not be allocated so as to evaluate the total course as a whole.

CREATING ENTREPRENEURSHIP AWARENESS

This is the path-breaking stage as it aims at making the students look at Entrepreneurship as on effective alternative to a 'White-collar job'. The following activities could be taken up for creating awareness about entrepreneurship among the XII year students so that from very initial stage, they can focus their attention on the option of setting up their own enterprises.

Creative Corner : A prominent place of the institution may be allotted to display information about product, success stories of 'high achievers' and salient features of an Entrepreneurship Development Programme.

Forming an Entrepreneurship Forum : Those students, who are interested in Entrepreneurship, can club-together and form a forum with the support from the faculty of the institutions. The forum can organize on a continuous basis activities such as i) inviting achievers and successful entrepreneurs to talk to the students, ii) elocution & essay compactions, iii) exhibitions on new products/ process and iv) video films on success stories, products/ process, etc.

Trade Fair Visit : Interested students can be taken to trade fairs to collect information on industrial products of their interest.

Seminars : One day seminars on 'I can do it' can be organized on business opportunities based on available resources & skills and how these can be utilized in establishing business ventures.

Institutional Visit : Students visit to financial institutions, promotional organizations, industry associations, research institutions and banks would help them in collecting information on availability of finance, technology, raw-materials and export potentials.

Establishment of a Commercial Activities Centre : The educational institutions can take up the initiative to establish a 'Commercial Activities Centre' (CAC) within the institution. Such a centre may include

a stationery shop, canteen etc. to be run by the students or the members of Entrepreneurship forum. The main objective of the CAC is to provide students 'hand-on-experience' of managing a commercial activity. Later on, the Centre can extend its role by providing market opportunities for the products designed and produced by the students. This will promote not only new initiatives among the students but also experimental learning in Entrepreneurship.

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SANSKRIT

SYLLABUS FOR HIGHER SECONDARY FINAL YEAR COURSE

One PaperTimes : **Three Hours** **Marks 100**

Unitwise Distribution of Marks and Periods :

Unit No.	Topics	Marks	Periods
Unit-1	Selected portions from poetry	40	70
Unit-2	Selected portions from drama and prose	35	60
Unit-3	Grammar	15	40
Unit-4	Composition	10	30
	Total	**100**	**200**

Unitwise Distribution of Course Contents :

Text Book : **Sanskrit Pathachayanam**, Published by *Assam Higher Secondary Education Council*

Unit-1 : Poetry:

(a) रघुवंशम् Canto XIII — 20 Marks
1st 57 Verses only
(annotated by Prof. S.M. Bhadra)

(b) श्रीमद् भगबद् गीता CantoII — 20 Marks
(annotated by Prof. U.c. Bhattacharyya)

Unit-2 : Drama and Prose :

(a) शरीरं क्षणविध्वंसि कल्पान्त स्थायिनो गुणा: (from नागानन्दम्) — 15 Marks
annotated by Sri H.M.D. Goswami

(b) असमराज्ये संस्कृत चर्चा — 20 Marks
by Prof Dr. R.N. Sarma

Unit-3 : Grammar : — 15 Marks
परस्मैपद विधान, आत्मनेपद विधान, कारक-विभत्कि, समास and knowledge of gender

Unit-4 : Composition in simple Sanskrit on a particular topic — 10 Marks

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RETAIL TRADE

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

India has been marching towards a dynamic knowledge economy and occupying a prominent place in the global arena. However, the shortcomings of our school and college education system in preparing our children for productive employment have been recognized by Industry, Government and Academicians for a long time. Keeping this in mind, in 2007, the MHRD initiated the process of revamping the Centrally Sponsored Scheme of Vocationalisation of Secondary Education, which was introduced in 1988 at +2 level in almost all the States and Union Territories. In the scheme it was proposed that there is a need to develop a National Skills Qualifications Framework (NSQF) for establishing a system of clear educational pathways from school through higher education. It was also suggested that the revamped scheme should be flexible in nature with multiple entry and exits, etc. so as to provide greater options to the students for choosing modules, keeping in view their aptitude and economic requirements. The proposed plan under the National Skills Qualifications Framework (NSQF) attempts to develop the skills of Secondary and Higher Secondary school students in classes 9 to 12 in the ages 14-18 years in an enabling environment that addresses their needs continuum – academic educational, technical, social, recreational and workplace readiness.

Specific outcomes expected from implementation of NSQF are:

- Mobility between vocational and general education by alignment of degrees with NSQF
- Recognition of Prior Learning (RPL), allowing transition from non-formal to organized job market
- Standardized, consistent, nationally acceptable outcomes of training across the country through a national quality assurance framework
- Global mobility of skilled workforce from India, through international equivalence of NSQF
- Mapping of progression pathways within sectors and cross-sectorally.
- Approval of NOS/QPs as national standards for skill training.

Objectives of NSQF:

The objectives of the NSQF are to provide a framework that:

- Accommodates the diversity of the Indian education and training systems.
- Allows the development of a set of qualifications for each level, based on outcomes which are accepted across the nation.
- Provides structure for development and maintenance of progression pathways which provide access to qualifications and assist people to move easily and readily between different education and training sectors and between those sectors and the labour market.
- Gives individuals an option to progress through education and training and gain recognition for their prior learning and experiences.
- Underpins national regulatory and quality assurance arrangements for education and training.
- Supports and enhances the national and international mobility of persons with NSQF-compliant qualifications through increased recognition of the value and comparability of Indian qualifications.

Retail is the process of selling goods or services to customers through multiple channels of distribution to earn profit. Retailing is the last link that connects the individual consumer with the manufacturing and distribution chain. It adds value in terms of bulk breaking and providing a wide variety of goods and services to customers. Retailing in India is one of the biggest sectors witnessing tremendous transformation. The Indian retail industry is fifth largest industry and second largest employer after agriculture offering bright and exciting career opportunities. This Learning Outcome Based Curriculum for the Retail Trade Vocational Subject has been designed for Job Roles approved by the Ministry of Human Resource Development (MHRD), Government of India under the National Skill Qualification Framework (NSQF).

After completion of this course, learners will be able to:

- Identify the functions of a retailer
- classify the various formats of store and non -store retailing
- Demonstrate the process of material management and identify the types of material handling equipment
- Receive & store goods in retail operations and arrange the products to delivery to the customers
- Identify the effective customer service and dealing effectively with customers
- Describe the duties and responsibilities of store operations assistant
- Identify the role and functions of junior merchandiser and list out the functions, principles and techniques of visual merchandising.
- Handle the various modes of payments during billing process and manage the cash activities
- Find out the advantages and disadvantages of different forms of communication
- Identify the health care measures in Retail and list out the unsafe working conditions
- Identify the duties of and responsibilities of Retailers
- Indentify the duties and responsibilities of cashier
- Describe the duties and responsibilities of customer service associate
- Identify the duties and responsibilities of Trainee Associate
- Identify the steps in determining the right assortment of Merchandise.
- Describe the duties and responsibilities of Merchandiser
- Identify the major functions and responsibilities of store associate
- Identify t he Methods of selling in Retail and find out the sales promotion activities in store
- Describe the duties and responsibility of sales associate
- Identify relevance of e -retailing resources and Information & communication Technology
- Identify the various telemarketing technologies and categorize the telemarketing activities.
- Handle the various Modes of Payments during Billing Process
- Describe the features of bank reconciliation statement and explain the procedure for reconciliation of cash and pass book balances.

Methods and Techniques:

Classroom Activities

Classroom activities are an integral part of this programme and interactive lecture sessions, followed by discussions should be conducted by teachers. Teachers should make effective use of a variety of instructional aids, such as Videos, Colour Slides, Charts, Diagrams, Models, Exhibits, Handouts, Recorded Compact Discs, etc. to transmit knowledge in projective and interactive mode.

Practical activities

Activities that provide practical experience in case based problems, role play, games, etc. and practical

exercises using props, tools and equipment. Teachers should teach specialized techniques such as handling of products and equipment, maintaining safety and hygiene in workplace, handling customer's complaints and requirements, etc. Field Visits and Industrial visits should be organized for better exposure and hands on experience.

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

One Paper One & half hour Marks 30

(Theory Paper)

Unit	Book	Periods	Mark
Unit- RS401	Advances in Retailing	24	5
Unit-RS 402	Inventory Management in Retailing	21	4
Unit -RS 403	Security and Housekeeping Supervision in Retailing	21	5
Unit -RS 404	Retail Sales Management	23	3
Unit -RS 405	Supply Chain Management in Retailing	23	4
Unit -RS 406	Non-Store Retailing	23	5
Unit -RS 407	Event Management in Retailing	21	2
Unit -RS 408	Managing Cash and Accounting in	24	2
		Total	**30**

Unitwise Distribution Of Course Content :		Theory (Mark)	Unit total	Periods
Unit-RS 401: Advances in Retailing				
	Retail Organizational Structure	2	5	6
	Retail Research			6
	Retail Strategy	3		6
	Retail Consumer Behaviour			
Unit-RS 402: Inventory Management in Retailing .				
	Types of Inventory	2	4	5
	Inventory Management	2		6
	Inventory Control			5
	Stock Valuation and Recording			5
Unit-RS 403: Security and Housekeeping Supervision in Retailing				
	Functions and points of Security	3	5	5
	Safety and Surveillance Equipment	2		5
	Handling of Materials and Equipment in Housekeeping			5
	Duties and Responsibilities of Security and Housekeeping Associate			6

Unit-RS 404: Retail Sales Management				
	Display of Products and Satisfy Customer Needs		3	6
	Sales and Delivery of Products			6
	Maintenance of Store Area and Communicate Effectively with			5
	Stakeholders			
	Duties and Responsibilities of Sales Associate	3		6
Unit-RS 405: Supply Chain Management in Retailing				
	Introduction to SCM	2	4	5
	Principles of Supply chain Management	2		6
	Participants in the Process of SCM			6
	Steps in supply chain Management			6
Unit-RS 406: Non -Store Retailing				
	E-Retailing	2	5	5
	E-Marketing	2		6
	Telemarketing			6
	Internet Business	1		6
Unit-RS 407: Event Management in Retailing				
	Understanding Event Management	2	2	6
	Documentation for Conducting Events			5
	Logistics and Standard Operating Procedure(Sop)			5
	Supervising Events			5
Unit-RS 408: Managing Cash and Accounting in Retailing				
	Managing Cash in Retail	2	2	6
	Fundamentals of Accounting			6
	Preparation of Journal and Ledger			6
	Preparation of Subsidiary Books and Bank Reconciliation Statement			6

Weightage to Questions (Theory Paper):

Type of Questions	Pattern of Questions	Distribution of Marks	No. of Questions	Marks
LA Type	Descriptive	3 Marks	2	6
SA Type	Descriptive	2 Marks	6	12
VSA Type	Fill in the Blanks	1 Mark	4	12
	True-False		4	
	MCQ		4	
	Total		**20 Nos.**	**30 Marks**

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

One Paper **Two hour (Prectical Paper)** **Marks 70**

Practical Details for 50 Marks

SL No	Topics	Unit	Marks
1	Group Discussion	401,403,406	10
2	Role Play	402,404,408	10
3	Product Display and Presentation/Product Identification	402,404	10
4	Case Study	401,405,407	10
5	GST, Bill/Voucher/JournaI/Event Documents/Resume/Job Applicant	407,408	10

Internal Assessment Details for 2 marks

SL No.	Topics	Marks
1	Viva- Voce	5
2	Direct Observation	5
3	Portfolio	5
4	Project	5

IT/ITeS

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

India has been marching towards a dynamic knowledge economy and occupying a prominent place in the global arena. However, the shortcomings of our school and college education system in preparing our children for productive employment have been recognized by Industry, Government and Academicians for a long time. Keeping this in mind, in 2007, the MHRD initiated the process of revamping the Centrally Sponsored Scheme of Vocationalisation of Secondary Education, which was introduced in 1988 at +2 level in almost all the States and Union Territories. In the scheme it was proposed that there is a need to develop a National Skills Qualifications Framework (NSQF) for establishing a system of clear educational pathways from school through higher education. It was also suggested that the revamped scheme should be flexible in nature with multiple entry and exits, etc. so as to provide greater options to the students for choosing modules, keeping in view their aptitude and economic requirements. The proposed plan under the National Skills Qualifications Framework (NSQF) attempts to develop the skills of Secondary and Higher Secondary school students in classes 9 to 12 in the ages 14-18 years in an enabling environment that addresses their needs continuum – academic educational, technical, social, recreational and workplace readiness.

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- ❖ Accommodates the diversity of the Indian education and training systems.
- ❖ Allows the development of a set of qualifications for each level, based on outcomes which are accepted across the nation.
- ❖ Provides structure for development and maintenance of progression pathways which provide access to qualifications and assist people to move easily and readily between different education and training sectors and between those sectors and the labour market.
- ❖ Gives individuals an option to progress through education and training and gain recognition for their prior learning and experiences.
- ❖ Underpins national regulatory and quality assurance arrangements for education and training.

- ❖ Supports and enhances the national and international mobility of persons with NSQF-compliant qualifications through increased recognition of the value and comparability of Indian qualifications.

Information Technology is the modern technology of producing meaningful output and information through computer. Information technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data.

The global sourcing market in India continues to grow at a higher pace compared to the IT-BPM industry. India is the leading sourcing destination across the world, accounting for approximately 55 per cent market share of the US$ 185-190 billion global services sourcing business in 2017-18. Indian IT & ITeS companies have set up over 1,000 global delivery centres in about 80 countries across the world.

More importantly, the industry has led the economic transformation of the country and altered the perception of India in the global economy. India's cost competitiveness in providing IT services, cost savings of 60–70 per cent over source countries, continues to be the mainstay of its Unique Selling Proposition (USP) in the global sourcing market. However, India is also gaining prominence in terms of intellectual capital with several global IT firms setting up their innovation centres in India.

India has become the digital capabilities hub of the world with around 75 per cent of global digital talent present in the country.India has been identified as upcoming Giant and Global hub of IT and IT enabled services sector.

This Learning Outcome Based Curriculum for the IT/ITeS Trade Vocational Subject has been designed for Job Roles approved by the Ministry of Human Resource Development (MHRD), Government of India under the National Skill Qualification Framework (NSQF).

At higher secondary level students who opt for this subject will get a brief introduction to the IT enabled applications and Software Developement .In the ever growing and developing digital generation Information technology has established itself as a value aided learning tool which may be used by any person now a days.The syllabus includes the basic level knowledges of programming language as well as application development module.Studying this topics will help the students to understand the idea of application building and various ideas and methodologies of software development.The basic idea of the syllabus at this level is to lay a proper foundation for the students who themselves want to engage in the professional field of software development in near future.

After completion of this course, learners will be able to:

- ❖ The students will understand the role of C Language in application development
- ❖ Students will understand the importance of C Language
- ❖ They will get a clear idea of the concepts such as:
  - ♦ Keywords
  - ♦ Identifiers
  - ♦ Tokens
  - ♦ Datatypes

- Constants
- Variables
- use of different operators
- various Input Output operations
- use of various control statements and expressions
- use of various loops for iteration or repetitive tasks in program
- The Concepts of Array and Strings
- Procedure oriented programming and object oriented programming(OOP) approach
- Various OOP concepts like abstraction, encapsulation,polymorphism,inheritance etc.
- Alogorithm and its importance and its types
- Data structure and its various types
- Representations of various data structures
- Stack and Queue and their applications
- Recursion

Methods and Techniques :

Classroom Activities

- Classroom activities are an integral part of this programme and interactive lecture sessions, followed by discussions should be conducted by teachers. Teachers should make effective use of a variety of instructional aids, such as Videos, Colour Slides, Charts, Diagrams, Models, Exhibits, Handouts, Recorded Compact Discs, etc. to transmit knowledge in projective and interactive mode.

Practical activities

- The activities which provides a proper understanding of all the topics by use of audio-visual tools are included. With the use of lab equipements, students are involved in various group discussions and presentation sessions where they get a proper chance to utilise their knowledge in depth to cope up with the latest technologies.

IT/ITES

SYLLABUS FOR HIGHER SECONDARY SECOND YEAR COURSE

One Paper One & half hour Marks 30

(Theory Paper)

HS 2ND YEAR (NSQF) LEVEL 4 : SYLLABUS		
TOPIC	**MARKS**	**HOURS**
Unit 1: Data Structure	10 Marks	20
Unit 2: Programming in C++	10 Marks	30
Unit 3: Programming in C	10 Marks	30
Total	**30 Marks**	**80hrs for Theory**

DESCRIPTIVE SYLLABUS:

Unit 1: DATA STRUCTURE **10 MARKS**

1. INTRODUCTION TO DATA STRUCTURE **1 mark**

I. Data Structure Instruction And Objectives
Ii. Algorithm Definition
Iii. Basic Critaria Of Algorthim
Iv. Data Structure Definition
V. Data Types
Vi. Types Of Data Structures
Vii. Representation Of Data Structure
Viii. Data Structure Operations
Ix. Summary

2. BASIC OF ALGORITHM **1 Mark**

I. Introduction
Ii. Objectives
Iii. Types Of Algorithm
Iv. Summary

3. ARRAY **3 Marks**

I. Intruduction And Objectives
Ii. Definition Of Array
Iii. Delaration And Initialization Of Array
Iv. One Dimensional Array And Its Representation
V. Operation On Linear Array
Vi. Two Dimensional Array And Its Representation
Vii. Summary

4. Stack **2 Marks**

I. Introduction And Objectives
Ii. Array Representation Of Stack
Iii. Operations On Stack
Iv. Application Of Stack
V. Summary

5. RECURSION **1 Mark**

I. Introduction And Objectives
Ii. Definition Of Recursion
Iii. Processof Recursion
Iv. Summary

6.	**QUEUE**	**2 Marks**
	I. Introduction And Objectives	
	Ii. Definition Of Queue	
	Iii. Representation Of Queue	
	Iv. Insertion And Deletion In Linear Queue	
	V. Types Of Queue	
	Vi. Summary	
Unit 2:	**PROFGRAMMING IN C++**	**10 MARKS**
1.	Procedure Oriented Programming Approach	1 Mark
2.	Object Oriented Programming (Oop)	1 Mark
3.	Encapsulation, Polymorphism, Inheritance	1 Mark
4.	Introduction To C++	1 Mark
5.	Tokens And Data Types In C++	1 Mark
6.	Statements, Expressionsand Operators	1 Mark
7.	Control Structure In C++	2 Marks
8.	Classes In C++	2 marks
Unit 3:	**PROFGRAMMING IN C**	**10 MARKS**
1.	Introduction To C Programming	1 Mark
2.	Basic Elements Of C Language	1 Mark
3.	Data Types In C Language	1 Mark
4.	Operation In C	1 Mark
5.	Input /Output	1 Mark
6.	Control Statement	1 Mark
7.	Loops	2 Marks
8.	Array And String	2 Marks

IT/ITES

SYLLABUS OF ASSAM HIGHER SECONDARY SECOND YEAR COURSE

One Paper Two hour Marks 70

(Prectical Paper)

Unit -2	Pragramming in C++	25 marks
Unit-3	Pragramming in C	25 marks
Internal Assessment	Portfolio	5 marks
	Project	5 marks
	Direct Observation	5 marks
	Viva	5 marks
	Total	**70 marks**

DESCRIPTIVE SYLLABUS:

UNIT 2 : PROFGRAMMING IN C++ 50 hours 25 Marks

1.	Writing Simple C++ Program Using Statement Experssion And Operators	5 Marks
2.	Writing Program Using Control Structures In C++	3 Marks
3.	Writing Program Using Functions In C++	10 Marks
4.	Writing Program Using Arrays And String In C++	3 Marks
5.	Writing Program Using Classesin C++	3 Marks
6.	Writing Program Using Constructor And Destructor In C++	1 Marks

UNIT 3: PROGRAMMING IN C 50 hours 25 Marks

1.	Writing Simple C Program Using Statement, Expression And Operators	10 Marks
2.	Writing Program Using Control Structure In C	10 Marks
3.	Writing Program Using Functions In C	3 Marks
4.	Writing Program Using Arrays And Strings In C	2 Marks