B. BOROOAH COLLEGE

(AN AUTONOMOUS COLLEGE UNDER UGC)

GUWAHATI-781007

SYLLABI OF ALL COURSES/PAPERS FOR
FIRST SEMESTER OF
FYUGP (ARTS), FYUGP (SCIENCE) B. B. A. & B. SC. IT
2025-26 BATCH

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ASSAMESE CORE

Semester 1 Paper 1

Paper Name/Title: অসমীয়া ভাষা-সাহিত্যৰ ইতিহাস (আৰম্ভণিৰ পৰা ১৮২৬ চনলৈ)

Paper Code: ASM-MJ/MN-01-B-01-04

Credits: 4 (Theory-4 Practical: Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

এই কাকতৰ জৰিয়তে অসমীয়া ভাষাৰ উদ্ভৱৰ সময়ৰ পৰা ১৮২৬ লৈ অসমীয়া ভাষা-সাহিত্যৰ পটভূমি, প্ৰধান ধাৰাসমূহ, লেখকসকল আৰু ৰচনাৰাজিৰ পৰিচয় দাঙি ধৰিব বিচৰা হৈছে। কাকতখনৰ উদ্দেশ্যসমূহ হ'ল:

- *নিৰ্বাচিত ৰচনাৰাজিৰ অধ্যয়নৰ জৰিয়তে নিৰ্দিষ্ট ধাৰা আৰু যুগৰ বৈশিষ্ট্যসমূহৰ বিষয়ে ধাৰণা গঢ়ি তোলা।*
- *এই সময়ছোৱাৰ অসমীয়া ভাষা-সাহিত্যৰ বিকাশ আৰু গতিপথৰ ধাৰণা আহৰণ।*
- *এই সময়ছোৱাৰ প্ৰধান লেখকসকলৰ সাহিত্য কৃতিৰ বিষয়ে জ্ঞান আহৰণ।*
- *সাহিত্যৰ ঐতিহাসিক আৰু ৰসাত্মক বিশ্লেষণ সম্পৰ্কে অৱগত হোৱা।*
- *ছাত্ৰ-ছাত্ৰীৰ মনত ৰসবোধ আৰু মানৱীয় মূল্যবোধ জগাই তোলা।*
- *ছাত্ৰ-ছাত্ৰীক ঐতিহ্য-সচেতন কৰি তোলা।*
- *ছাত্ৰ-ছাত্ৰীক ভাৰতীয় পৰম্পৰাগত জ্ঞান চৰ্চাৰ ধাৰা সম্পৰ্কে অৱগত কৰা।*

(প্ৰতি ইউনিটৰ মূল্যাংক 25 আৰু শ্ৰেণী 15 টাকৈ (সময় 15 ঘণ্টা)

Unit 1

অসমীয়া ভাষা-সাহিত্যৰ উদ্ভৱ আৰু বিকাশৰ ৰূপৰেখা, উদ্ভৱকালীন অসমীয়া সাহিত্য, প্ৰভ্ন আৰু মিশ্ৰ অসমীয়া সাহিত্য

নিৰ্বাচিত পাঠ

কামৰূপী লোকগীত: ৰাধে ক'লা নুবুলিবি মোক
গোৱালপৰীয়া লোকগীত: আৰে দান্তাল হাতীৰ মাহুতৰে
মালিতা:ফুলকোঁৱৰৰ মালিতা
চৰ্যাগীত: ১নম্বৰ চৰ্যা (লুইপাদৰ কাআ তৰুবৰ)

Unit 2

প্ৰাকশংকৰী যুগৰ সাহিত্য, ভাষিক-সাহিত্যিক বৈশিষ্ট্য, কবিসকলৰ চমু পৰিচয়

হেম সৰস্বতী - প্ৰহলাদক হিৰণ্যকশিপুই দিয়া শাস্তি আৰু নৰসিংহৰ আবিৰ্ভাৰ (প্ৰহলাদ চৰিতৰ পৰা)
মাধৱ কন্দলি- ৰামায়ণৰ সুন্দৰাকাণ্ডৰ হনুমন্তৰ লংকা দৰ্শন অংশ

Unit 3

শংকৰদেৱকালীন সাহিত্য

শংকৰদেৱ - মন মেৰি ৰাম চৰণেহি লাগু (বৰগীত)
মাধৱদেৱ-চোৰধৰা (ঝুমুৰা)
ৰাম সৰস্বতী- ভীমচৰিতৰ পৰা ভীম আৰু বকাসুৰ সম্পৰ্কীয় অংশ
সুকবি নাৰায়ণদেৱ- বেউলাৰ নৃত্য (পদ্মাপুৰাণ)

Unit 4

শংকৰদেৱৰ পৰৱৰ্তীকালৰ সাহিত্য:

সাহিত্যৰ ভিন্ন কেন্দ্ৰসমূহ, গদ্য সাহিত্যৰ বিকাশ, চৰিতপুথি আৰু বুৰঞ্জীকে ধৰি এই সময়ৰ ধাৰাসমূহ, ব্যাৱহাৰিক

সাহিত্য
ভট্টদেৱ- বিষাদ যোগ (কথাগীতা)
কথাগুৰুচৰিত- শংকৰদেৱ আৰু মাধৱদেৱৰ মিলন
অসমৰ ৰণোদ্যম (সাতসৰী অসম বুৰঞ্জী)
সুকুমাৰ বৰকাথ: ঐৰাৱতৰ লক্ষণ (হস্তীবিদ্যার্ণৱ)

পাঠ্যাৱলী

অসমীয়া সাহিত্যৰ চানেকি (প্রথম, দ্বিতীয় আৰু তৃতীয় খণ্ড)- হেমচন্দ্র গোস্বামী
অসমীয়া সাহিত্যৰ সমীক্ষাত্মক ইতিবৃত্ত: সত্যেন্দ্রনাথ শর্মা
অসমীয়া সাহিত্যৰ ৰূপৰেখা: মহেশ্বৰ নেওগ
চর্যাপদ: পৰীক্ষিত হাজৰিকা
স্নাতকৰ কথাবন্ধ: মহেশ্বৰ নেওগ
অসমীয়া কথা সাহিত্য: বিৰিঞ্চিকুমাৰ বৰুৱা
অসমীয়া সাহিত্যৰ বুৰঞ্জী (প্রথম খণ্ড): বিশ্বেশ্বৰ হাজৰিকা (সম্পাদনা)
অসমীয়া সাহিত্যৰ বুৰঞ্জী (দ্বিতীয় খণ্ড): শিৱনাথ বর্মন (সম্পাদনা)
বাৰমাহৰ তেৰগীত -প্রফুল্লদত্ত গোস্বামী (সম্পাদিত)
আখ্যান গীত- ভৱপ্রসাদ চলিহা (সম্পাদিত)
গোৱালপৰীয়া লোকগীত সংগ্রহ- বীৰেন্দ্রনাথ দত্ত (সম্পাদক)
অসমীয়া লোকগীত সঞ্চয়ন- হেমন্তকুমাৰ শর্মা (সম্পাদনা)
পুৰণি অসমীয়া সাহিত্য: বাণীকান্ত কাকতি
সাতসৰী অসম বুৰঞ্জী: সূর্যকুমাৰ ভূঞা (সম্পাদিত)
Assamese: It's Formation and Development- Banikanta Kakati
Aspects of Early Assamese Literature-Banikanta Kakati

Graduate Attributes:

জ্ঞান আধাৰ, ঐতিহ্যমুখিতা, ইতিহাস আৰু সমাজচেতনা, পৰম্পৰাগত ভাৰতীয় জ্ঞানৰ প্রতি সজাগতা আৰু পৰিবেশচেতনা।

BOTANY CORE

Semester 1 Paper 1

Paper Name/Title: Plant and Microbial Diversity

Paper Code: BOT-MJ/MN-01-B-01-04

Credits = 4 (Theory 3 Practical 1)

(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100

Course Level: 100-199, and subsequent level as per NEP structure

Graduate Attributes

Course Objectives:

This paper will explain the origin of life, the diversity of Bacteria, Viruses, Algae, Fungi & Lichen, Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms on the planet, and how they may be related to each other. The emphasis will also be on the hands-on approach and laboratory techniques for identification of the plant and microbial groups using various morphological features.

Learning outcome:

On successful completion of the course, students will have:

1. Knowledge with the concept of different kingdoms and the theories behind how life began.
2. Basic understanding of the characteristics, distribution, classification, reproduction, and current status of various microbial and plant communities.
3. Good understanding of virus, algae, fungus, bryophyte, and pteridophyte cell structures, dicotyledonous and monocotyledonous leaf venation patterns, and inflorescence and fruit features. Knowledge to identify various groups of organisms in the laboratory through morphological analysis.

THEORY [Total marks: 60] Credit: 03; Total No. of classes: 45			
Unit No.	**Unit Content**	**No. of classes**	**Marks**
Unit 1	**Bacteria and Viruses:** **Bacteria:** General characteristics, shapes and sizes, ultra-cellular structure; general characteristics of Actinobacteria, Mycoplasma and Rickettsiae; introduction to Archaebacteria. **Viruses:** History of virology; general features; morphology of bacteriophage.	6	10
Unit 2	**Algae:** General features, ecology and distribution, cell structure, range of thallus structure, reproduction, and classification, economic importance of algae; a brief account on *Nostoc*, *Oedogonium*, *Chara*, general account of Diatoms.	8	12
Unit 3	**Fungi & Lichens:** **Fungi:** General features; reproduction; life cycle pattern; brief account of *Mucor*, *Saccharomyces*, *Penicillium*, and *Agaricus.* **Lichens:** General characteristics of lichens; structure, types, and economic importance.	7	10
Unit 4	**Bryophytes and Pteridophytes:** **Bryophytes:** General features, adaptation to land habits, classification, evolutionary trends, economic importance; a brief account on *Marchantia, Anthoceros* and *Polytrichum.* **Pteridophytes:** General features, classification, reproduction, evolutionary trends (stelar evolution); heterospory and seed habit; a brief account on *Lycopodium*, *Selaginella*, *Equisetum* and *Adiantum.*	10	12
Unit 5	**Gymnosperms:**		

	General features, classification, reproduction, evolutionary trends, economic importance; a brief account on *Cycas* and *Gnetum.*	5	6
Unit 6	**Angiosperms:** General features, Basic concept of artificial, natural, and phylogenetic system of classification. Floral parts and inflorescence; brief accounts of Magnoliaceae, Fabaceae and Orchidaceae with special reference to their ecological and economic importance.	9	10
	PRACTICAL [Credit: 01]	30	40
	1. Study of structure of TMV and Bacteriophage (electron micrographs/models). **2.** Study of morphology of *Nostoc*, *Oedogonium*, *Chara* (temporary preparation of slides). **3.** Study of *Mucor*/ *Rhizopus*, *Aspergillus*/ *Penicillium*, *Agaricus*/ *Polyporus* (temporary preparation of slides). **4.** Study of vegetative and reproductive parts of *Marchantia*, *Anthoceros* and *Polytrichum* (temporary preparation of slides). **5.** Study of *Lycopodium* and *Selaginella* (morphology, strobilus, and spores). **6.** Study of *Cycas* and *Gnetum* (morphology, leaf, megasporophyll and microsporophyll) **7.** Study of different types of inflorescences and fruits.		

Reading list:

1. Bhatnagar SP, Moitra A (1996) Gymnosperms. New Delhi, Delhi: New Age International (P) Ltd Publishers.
2. Campbell NA, Reece JB (2008) Biology, 8th edition, Pearson Benjamin Cummings, San Francisco.
3. Evert RF, Eichhorn SE (2012) Raven Biology of Plants, 8th edition, New York, NY: W.H. Freeman and Company.
4. Ingrouille M, Eddie B (2006) Plants: Evolution and Diversity. Cambridge University Press.
5. Kumar HD (1999) Introductory Phycology, 2nd edition. Delhi, Delhi: Affiliated East-West. Press Pvt. Ltd.
6. Parihar NS (1991) An Introduction to Embryophyta. Vol. II. Pteridophytes. Prayagraj: U.P.: Central Book Depot.
7. Pelczar MJ (2001) Microbiology, 5th edition. New Delhi, Delhi: Tata McGraw-Hill Co.
8. Puri P (1985) Bryophytes. New Delhi, Delhi, Atma Ram and Sons.
9. Sethi IK, Walia SK (2018) Text book of Fungi and Their Allies. 2nd Edition, Med tech Publishers, Delhi.
10. Singh G (2019) Plant Systematics: An Integrated Approach. 4th edition. CRC Press, Taylor and Francis Group.
11. Singh V, Pandey PC, Jain DK (2001) A Text Book of Botany. Meerut, UP: Rastogi and Co.
12. Tortora GJ, Funke BR, Case CL (2007) Microbiology. San Francisco, U.S.A: Pearson Benjamin Cummings.
13. Vashishta PC, Sinha AK, Kumar A (2010) Pteridophyta. New Delhi, Delhi: S. Chand & Co Ltd.
14. Webster J, Weber R (2007) Introduction to Fungi. Cambridge, Cambridge University Press.

No. of Required Classes: 75 (Theory: 45; Practical: 30)
No. of Contact Classes: 75 (Theory: 45; Practical: 30)
No. of Non-Contact Classes: Nil

CHEMISTRY CORE
Semester 1 Paper 1
Paper Name/Title: Chemistry – I
Paper Code: CHE-MJ/MN-01-B-01-04
Credits = 4 (Theory 3 Practical 1)
(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100

Course outcomes:

- Understand and apply the quantum mechanical model of atomic structure and periodic trends of elements.
- Explain the kinetic theory of gases, behavior of real gases, and fundamental physical properties of gases and liquids.
- Interpret organic molecular structures using hybridization, electronic effects, and isomerism, and predict chemical behavior based on acidity/basicity and stereochemistry.
- Describe and apply concepts of symmetry in molecules and crystals and analyze crystal structures using X-ray diffraction and related crystallographic principles.

Learning outcomes:

On successful completion, students would have clear understanding of the concepts related to atomic and molecular structure, physical properties of gases and liquids. Students will be able to identify different classes of organic compounds, describe their reactivity and explain/analyze their chemical and stereo chemical aspects. In solid state unit the students will learn the basic solid state chemistry application of x-ray crystallography for the determination of some very simple crystal structures. Students will also have hands on experience of standard solution preparation in different concentration units and learn volumetric estimation through acid-base and redox reactions.

Unit I

- Bohr's model, H atom spectrum
- Failures of classical mechanics (Black body radiation, the photoelectric and Compton effects, atomic spectra, the duality of matter), Planck's Explanation of black body radiation, Einstein's explanation of the Photoelectric effect
- Quantum mechanical approach to atomic structure: Schrodinger wave equation, Radial and angular wave functions for hydrogen atom, Quantum numbers, Pauli's Exclusion Principle, Hund's rule of maximum multiplicity, Aufbau's principle, Eigenfunction, Significance of Ψ and Ψ^2, probability distribution
- Periodicity of the elements: Shielding, Effective nuclear charge, Slater's Rule, Covalent and Ionic radii, Ionization energies, electronegativity (various scales), electron affinities

Unit II

- Kinetic molecular model of a gas: Postulates and derivation of the kinetic gas equation, collision frequency; collision diameter; mean free path and viscosity of gases.
- Maxwell distribution and its use in evaluating molecular velocities and average kinetic energy.
- Law of equipartition of energy and molecular basis of heat capacity.
- Behaviour of real gases: Deviations from ideal gas behaviour, compressibility factor (Z), and its variation with pressure and temperature. Causes of deviation from ideal behaviour.
- Van der Waals equation of state, van der Waals equation expressed in virial form and calculation of Boyle temperature. Critical state, relation between critical constants and van der Waals constants, law of corresponding states.
- Physical properties of liquids: vapour pressure, surface tension and coefficient of viscosity. Effect of addition of various solutes and temperature on surface tension and viscosity of liquids. Explanation of cleansing action of detergents.

Unit III

- Classification and IUPAC Nomenclature of Organic Compounds
- Hybridization of carbon in organic compounds, Shapes of molecules, influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment; Acid-base behaviour, pKa values and factors effecting acidity/ basicity of organic compounds.
- Isomerism: Types of steroisomerism - conformational and configurational isomers, enantiomers & diastereomers, π-distereomers- differences in physical and chemical properties of π-diastereomers. Syn/anti, cis/trans & E/Z designation. Stereomutation of π-diastereomers. Cis-trans isomerism in cycloalkanes- (upto 6- membered rings) Enantiomers - optical activity, asymmetry, dissymmetry or chirality, racemic modification, & methods of resolution of racemic modification & projection formula- Flying-wedge formula, Fischer, Newman & Sawhorse projection. Criteria for showing optical activity, examples of optically active molecules without chiral centre. Relative and absolute configuration: D/L and R/S designations.

Unit IV

- Symmetry elements and operations, molecular point groups, symmetry elements present in C_{2V}, C_{3V} point group
- Symmetry in crystal system, Unit Cell, Crystal system, Bravais Lattices, Miller Indices, space groups, X-ray diffraction, Bragg's law.

Laboratory Course I

1. Preparation of normal and molar solution of common acid base reagents.

2. Surface tension measurements.
   a) Determine the surface tension by (i) drop number (ii) drop weight method.
   b) Study the variation of surface tension of detergent solutions with concentration.

3. Viscosity measurement using Ostwald's viscometer.
   a) Determination of viscosity of liquid at a given concentration at room temperature.
   b) Study the variation of viscosity of sucrose solution with the concentration of solute.

ECONOMICS CORE
Semester 1 Paper 1
Paper Name/Title: Fundamentals of Economics
Paper Code: ECO-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Course Objective:

This course aims to give the students a basic idea of microeconomics, macroeconomics and public finance. The course is designed to expose the students how the preliminary concepts of microeconomics, macroeconomics, economics of growth and development and public economics can be applied to real life situations.

Learning Outcome:

This course aims to develop the fundamental conceptual framework which will enable students in understanding the essence of the basic economic problems, demand and supply, GDP and concepts of national income. The course will also help the students to analyze and understand the primary concepts related to economic growth, measures of development, open economy macroeconomics and various concepts of public economics.

UNIT- I - The Essence of Economic Problem (14)

Problem of scarcity and choice: Scarcity, Choice and Opportunity cost; Production possibility frontier; demand and supply: Law of demand, determinants of demand, shifts of demand versus movements along a demand curve, market demand, law of supply, determinants of Supply, Shifts of supply versus movements along a supply curve, market supply, market equilibrium, applications of demand and supply: price rationing, price floors, consumer surplus, producers surplus. Elasticity: price elasticity of demand, measurement of elasticity, determinants of price elasticity, other elasticities.

Unit-II - National Income and its measurement (12)

Basic concept of National Income, circular flow of income and expenditure in two sector, three sector and four sector economy, concept of GDP, GNP, NDP, NNP, Private income, personal disposable income, per capita income, real versus nominal GDP, GDP deflator, methods of measuring national income and national income accounting and cost of living.

Unit-III - Economics of Growth and Development (10)

Concept and difference between Economic growth and Economic development, characteristics of Economic growth, Measures and indicators of economic development - GNI, PCI, PPP, HDI, PQLI, Concept of sustainable development. An overview of India's development prospective.

Unit-IV - Basics of open economy Macroeconomics (12)

The subject matter of international economics; balance of payments: current and capital account, balance of trade, Disequilibrium in BOP and its causes, correction of BOP deficit. Current international economic problems and challenges. BOP situation in India.

Unit-V - Elements of Public Economics (12)

Nature and scope of public finance, Co-ordination between the allocation, distribution, stabilizational and growth objectives of Public Economics, definition and characteristics of public goods, definition of public expenditure, cannons of public expenditure, distinction between Revenue and non-revenue receipts, tax and non-tax revenue receipts: sources and classification, reasons for growing public debt, sources of public debt, repayment of public debt. Tackling the burden of public debt (Concepts only).

Readings:

1. N.C Ray, Microeconomics theory, MacMillan

2. Soumyen Sikdar, Principles of Macroeconomics, Oxford.

3. Sibabrata Das ,Alex Mourmouras, Peter C. Rangazas,Economic Growth and Development-A Dynamic Dual Economy Approach.

4. N. Gregory Mankiw, Principles of Macroeconomics, CENGAGE Learning.

Richard A. Musgrave Peggy B. Musgrave, Public Finance in theory & Practice, McGraw-Hill.

EDUCATION CORE

Semester 1 Paper 1

Paper Name/Title: Foundation of Education

Paper Code: EDU-MJ/MN-01-B-01-04

Credits: 4 (Theory-4 Practical: Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Course Objectives:

After completing the course, the student will be able to –

- Define the concept of Education with their meaning, nature and functions
- Know various agencies of Education
- Understand various determinants and classification of Aims of Education
- Define various aspects related to Curriculum
- Illustrate various components of Discipline and Freedom

UNIT NO.	CONTENTS	NO. OF CLASSES	MARKS
1	Concept of Education: ● Meaning, Nature and Scope of Education ● Different forms of Education: Formal, Informal and Non-Formal Education ● Functions of Education: - General functions of Education - Functions of Education in human life - Functions of Education towards society at large	12	20
2 Project for Internal	Agencies of Education: ● Different agencies of Education - Home - Educational Institutions - State - UNO and UNESCO(Objectives and functions) - Mass Media (TV, Radio, News Paper, Cinema) - Internet (Wikis, Social networking sites and blogs)	12	20
3	Aims of Education: ● Meaning and Concept of Aims of Education ● Determinants of Aims of Education ---Philosophical, Sociological, and Economical ● Importance of Aims of Education ● Classification of Aims of Education - Individual and Social - Vocational and Liberal - Democratic Aim - Delor's Four Pillars of Education	12	20

	- Skill-based Aims of Education as per NEP 2020		
4	Curriculum: ● Meaning and nature of the Curriculum ● Determinants of Curriculum ● Challenges of the Existing Curriculum ● Principles of Curriculum Construction, the difference between Curriculum and Syllabus ● Co-curricular activities – concept, importance, and types ● Correlation of studies	12	20
5	Discipline and Freedom: ● Meaning, concept, and definition of Discipline ● Forms of Discipline – - Internal Discipline - External Discipline ● Relationship between Discipline and Freedom, Discipline and Order ● Concept of Free Discipline. ● Discipline in educational institutions: Role of teacher, family, and peers ● Concept of Reward and Punishment – - Reward (usability, merits, and demerits) - Punishment (usability, merits and demerits)	12	20

TEXTBOOKS:

1) Agarwal, J.C. (2010). *Theory and Principles of Education,* Delhi, Vikas Publishing House Ltd.
2) Baruah, J. (2006). *Sikshatatta Adhyayan.* Guwahati Lawyer's Book Stall
3) Bhatia, K. & Bhatia (1994), B.D. *Theory and Principles of Education: Philosophical & Sociological Bases of Education,* 20th ed., Delhi, Doaba House
4) Goswami, Dr. M., *Principles and Foundations of Education*, 1st ed., 2014, Lakhsmi Publishers & Distributors, New Delhi
5) Safaiya R.N. &Shaida B.D. (2010). *Modern Theory and Practice of Education,* New Delhi: Dhanpatraj Publishing Company Pvt. Ltd.

REFERENCES:

1) Chatterjee, S. (2012) *Principles and Practices of Modern Education,* Delhi, Books &Alied Ltd.
2) Goswami, D. (2012). *Principles of Education,* Guwahati, LBS Publications
3) Raymont T. (1904) *Principles of Education,* London, New York & Bombay: Longman's Green & Co.
4) Ross, J.S. (1945) *The Ground Work of Educational Theory.* London, Toronto, Bombay, Sydney: George G. Harrap & Co. Ltd.

ENGLISH CORE

Semester 1 Paper 1

Paper Name/Title: Literary Types, Forms and Genres in English Literature

Paper Code: ENG-MJ/MN-01-B-01-04

Credits: 4 (Theory-4 Practical: Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

(15 Classes Per Credit)

Course Objectives:

This paper is designed to introduce students to the broad forms, genres and important concepts of English literature. The topics have been selected with an eye on the fact that this would be their first brush with English literature proper. Students are expected to familiarize themselves with the dominant forms, genres and concepts that have shaped the English literary canon. An earnest engagement with this paper will greatly facilitate their entry into the chronological study of literary texts, which will unfold in later semesters.

Learning Outcomes:

At the end of the semester, students are expected to:

- Understand the concept of forms, types and genres
- Acquaint themselves with the key features/elements of the fundamental literary categories
- Develop a sense of historical evolution of the genres in England
- Familiarize themselves with the variations within each genre, and
- Be able to make interconnections

This paper brings a genre-based focus to the study of literature. This being the opening paper of the entire programme, teachers are expected to hand-hold students into the paper. Preferably, they should begin by explaining to students the concept of types, forms and genres.

UNIT 1: **Forms and Genres in Poetry** (1 credit)

- The Epic in English and the Western world
- The Lyric
- The Sonnet form and its practices in English
- Elegy and Pastoral Elegy
- Ode
- Dramatic Monologue
- Satirical Poetry

UNIT 2: **Forms and Genres in Novel** (1 credit)

- The Novel as Narrative – Elements and Features
- Narrative precursors
- The Epistolary Novel
- Gothic Novel
- Historical Novel
- The Realistic novel
- Stream of Consciousness Novel

UNIT 3: **Forms and Genres in Drama** (1 credit)

- Tragedy in Ancient Greece and Rome
- Drama in England: Mystery, Miracle, Morality
- Tragedy and Comedy in Renaissance England
- Comedy of Humours
- Comedy of Manners
- Farce

- Tragicomedy

UNIT 4: **Terms and Topics** (1 credit)

- The *Bible* in English
- The Essay – Periodical and Personal
- Biography and Autobiography
- Letters by Writers
- The Short Story
- Science Fiction and Crime Fiction
- Travel Writing

Recommended Readings:

Abrams, M. H. and Geoffrey Galt Harpham. *A Glossary of Literary Terms*. Stamford: Cengage Learning, 2015
Baldick, Chris. *The Oxford Dictionary of Literary Terms*. Oxford, OUP, 2015
Carter, Ronald and John McRae. *The Routledge History of Literature in English: Britain and* Ireland, Third edition. London and New York: Routledge, 2024
Cuddon, J. A. and M. A. R. Habib. *The Penguin Dictionary of Literary Terms and Literary Theory*, Fifth edition. London: Penguin, 2015
Murfin, Ross and Supriya Ray. *The Bedford Glossary of Critical and of Literary Terms*, Fourth edition. Bedford, 2019

GEOGRAPHY CORE

Semester 1 Paper 1

Paper Name/Title: Introduction to Physical Geography and Geotectonics

Paper Code: GGY-MJ/MN-01-B-01-04

Credits: 4 (Theory-3 Practical: 1)

(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100

Course Objectives:

1. To understand the fundamental concepts in Physical Geography and Geotectonics.
2. To study the earth's interior, tectonics and structural evolution and earth's movements.
3. To explain the theories of continental drift, sea-floor spreading and plate tectonics.

Learning Outcomes:

1. Gaining insights on various concepts and theories of physical geography and geotectonics.
2. Understanding the Earth's geomorphic transition from beginning to present day.
3. Obtaining adequate knowledge on the internal structure, tectonics and structural evolution of earth, conceopt of Isostasy and earth's movements.
4. Acquiring comprehensive knowledge on dynamism of earth's crust and interior through continental drift, sea-floor spreading and plate tectonics theories.

Theory

1. Nature, scope and development of physical geography, Origin of the solar system-Nebular Hypothesis of Laplace, Inter-Stellar Dust Hypothesis and Big Bang Theory.
2. Interior structure of the Earth with special reference to seismology, Earthquakes,Volcanoes, Rocks and its associated landforms,
3. Earth's tectonic and structural evolution with reference to Geological Time Scale., Concept of Plate Tectonics, Continental Drift Theory,Sea-floor Spreading and Paleomagnetism, Basic principles on Isostasy and its different views.
4. Earth Movements: Endogenic Forces and Exogenetic Forces, Epeirogenetic and Orogenic, Origin and classification of folds and faults, Geosynclines, Weathering, Mass-movements.

Practical

1. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical map of plateau region. Construction of relief profiles (serial, superimposed, projected, and composite). (5 assignment)
2. Delineation of drainage basins, Construction of relative relief map and Slope map taking 5'x5'from Survey of India toposheet (Wentworth's method & Smith's method), Preparation of a topographical map from Survey of India of R.F- 1:50k using dissection index. (4 Assignments)
3. Stream Ordering (Strahler & Horton), Measurement of dip and strike using clinometer. (4 assignment)
4. Interpretation of geological map and construction of cross-section (two geological maps) showing different sedimentary beds. (2 Assignments).
5. Viva-Voce based on laboratory Note-book.

N.B.: ***Students are not allowed to enter examination hall without practical Note-Book.***

Book List:

1. Goudie, A.S. (Ed) 2004 Enclycopedia of Geomorphology, Vol. 1&2, Routledge.
2. Billings. M.P. 1971, Structural Geology, Pearson.
3. McGullagh, P. 1978, Modern Concepts in Geomorphology, Oxford University Press.
4. Strahler,A 2016, Introducing Physical Geography, 6th edition, Willy & Sons, New York.
5. Khullar, D.R.,2012, Physical Geography, Kalyani Publishers, New Delhi.
6. Dayal, P, 2011, Atext Book on Geomorphology, Rajesh Publication, New Delhi.
7. Singh, S 1997, Physical Geography, Prayag Pustak Bhawan, Allahabad
8. Ahamed, E 2001, Geomorphology, Kalyani Publisher, New Delhi.
9. Monkhouse, F. J.2999, Principles of Physical Geography, Platinum Publishers, Kolkata.

HINDI CORE

Semester 1 Paper 1
Paper Name/Title: हिंदी व्याकरण
Paper Code: HIN-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

विषय : हिंदी (Major/Minor)
छमाही : प्रथम कोर्स का नाम : हिंदी व्याकरण
कुल अंक : 100 बाह्य परीक्षण : 60 आंतरिक परीक्षण : 40

इकाई	क्रेडिट	पाठ्य-विषय	कक्षा संख्या	अंक (बाह्य परीक्षण + आंतरिक परीक्षण)
1	**1**	**हिंदी की वर्ण व्यवस्था :** वर्ण का स्वरूप, स्वर और व्यंजन, अनुस्वार, अनुनासिक, हिन्दी के लिपि चिह्न, हिंदी वर्णों का उच्चारण, उच्चारण की विशेष अशुद्धियाँ एवं उनका निदान	**15**	**25 (15+10)**
2	**1**	**हिंदी शब्द रचना :**उपसर्ग, प्रत्यय, संधि, समास, लिंग, वचन	**15**	**25 (15+10)**
3	**1**	**हिंदी रूप रचना :** पद : परिभाषा एवं भेद, कारकीय रूप रचना, क्रिया रूप रचना	**15**	**25 (15+10)**
4	**1**	**हिंदी वाक्य रचना :** वाक्य विन्यास : अर्थ एवं बनावट की दृष्टि से विविध प्रकार के वाक्यों की रचना, उद्देश्य-विधेय, विरामचिह्न, पदक्रम एवं अन्वय, कर्ता, कर्म और क्रिया के बीच लिंग संबंधी अन्विति, वाक्य परिवर्तन, वाक्य-शुद्धि	**15**	**25 (15+10)**

द्रष्टव्य :आंतरिक परीक्षण के **अंतर्गत 10 अंक के लिए मौखिकी** रहेगी जिसके तहत आशु भाषण एवं प्रश्नोत्तर की व्यवस्था होगी। शेष **30** अंक के लिए सत्रीय परीक्षा, गृहकार्य, समूह में चर्चा आदि की व्यवस्था रहेगी।

संदर्भ ग्रंथ :

1. आधुनिक हिंदी व्याकरण और रचना : डॉ. वासुदेवनंदन प्रसाद, भारती भवन, पटना
2. हिंदी : एक मौलिक व्याकरण, प्रो. रमाकांत अग्निहोत्री, वाणी प्रकाशन, नई दिल्ली
3. हिंदी व्याकरण : पं. कामताप्रसाद गुरु, लोकभारती प्रकाशन, प्रयागराज
4. हिंदी व्याकरण विमर्श : तेजपाल चौधरी, वाणी प्रकाशन, नई दिल्ली

5. व्याकरण प्रदीप : रामदेव एम. ए., राजकमल प्रकाशन समूह, नई दिल्ली
6. नवशती हिंदी व्याकरण : बद्रीनाथ कपूर, राजकमल प्रकाशन समूह, नई दिल्ली

- **पूर्व योग्यता :**हिंदी सहित **10वीं** कक्षा उत्तीर्ण
- **स्नातक गुण :**

  कोर्स का लक्ष्य : इस पाठ्यक्रम का मूल उद्देश्य विद्यार्थियों को हिंदी भाषा के वर्ण, शब्द, रूप और वाक्य रचना से संबंधित व्याकरणिक ज्ञान प्रदान करना है। इसके माध्यम से विद्यार्थी शुद्ध उच्चारण, पदों की पहचान, शब्द संरचना के नियमों तथा वाक्य विन्यास की विविधताओं को समझ सकेंगे। यह पाठ्यक्रम भाषा के शुद्ध, प्रभावी और व्यावहारिक प्रयोग की योग्यता विकसित करने में सहायक सिद्ध होगा।

  शिक्षण उपलब्धि : इस पाठ्यक्रम का अध्ययन कर विद्यार्थी हिंदी भाषा के वर्ण, शब्द, रूप और वाक्य रचना को समझ सकेंगे। वे शुद्ध उच्चारण, व्याकरणिक नियमों का अनुप्रयोग, वाक्य संरचना एवं भाषा की त्रुटियों को पहचानने और सुधारने में सक्षम होंगे। इससे उनकी लेखन, पठन और भाषण क्षमता में सुधार होगा।

- **सैद्धांतिक क्रेडिट : 04**
- **व्यावहारिक क्रेडिट : 00**

आवश्यक कक्षाओं की संख्या : 60 प्रत्यक्ष कक्षाएं : **60** अप्रत्यक्ष कक्षाएं : **0**

HISTORY CORE
Semester 1 Paper 1
Paper Name/Title: History of India (Up to 1206 CE)
Paper Code: HIS-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Course Outcome: The completion of this course will enable students to understand, explore and use historical tools for reconstructing ancient Indian history. The students will be able to explain the various stages of evolution of human culture, transformations in polity and society of early India, new political formations and emergence of imperial state structures. They will also be able to examine India's interaction with foreign influence and the changes brought about.

Unit I: Reconstructing Ancient Indian History (Lectures: 14; Tutorial: 05; Marks: 25)

(a) Sources of Reconstruction: Archaeological and Literary.
(b) Pre-History: Hunting-Gathering Societies – Palaeolithic and Mesolithic cultures.
Advent of Food Production: Neolithic and Chalcolithic cultures.
(c) Proto-History: Harappan Civilization – Origin, First Urbanisation, Characteristics, Religion, Decline.
(d) Vedic Culture: Early and Later Vedic periods: Tribal Polity, Social Stratification, Economy, Religion.
(e) Very brief overview of BRW, OCP, PGW, NBPW Cultures.

Unit II: Changing Political Formations (Lectures: 12; Tutorial: 03; Marks: 25)

(a) Early Territorial States: Second Urbanisation – *Janapadas, Mahajanapadas*.
(b) Alexander's Invasion of India and its effects.
(c) Mauryan Empire: Chandragupta Maurya; Ashoka's Dhamma and Rock Edict XIII; Administrative system; Decline.
(d) Post-Mauryan Politics: Kushanas, Sungas, and Satavahanas.

Unit III: Political Structures (Lectures: 11; Tutorial: 03; Marks: 25)

(a) The Guptas Empire: Administration, Decline.
(b) Land Grant Economy and Early Feudalism.
(c) Post-Gupta Period: Harshavardhana - Religious Assemblies, Samanta System

Unit IV: Towards Early Medieval India (Lectures:11; Tutorial: 03; Marks: 25)

(a) Rise of Regional Powers: Rajputs in Northern India; Rashtrakutas, Cholas, and Chalukyas of Badami in Southern India.
(b) Arab Invasion of Sind and its Impact.
(c) Early Turkish Invasions: Mahmud Ghazni, Muhammad Ghori

Readings:

1. Ranabir Chakravarti, *Exploring Early India up to c. AD 1300*, Macmillan, Delhi, Second Edition, 2013.

2. V K Jain, *Prehistory and Proto-history of India - An Appraisal, Paleolithic, Non-Harappan, Chalcolithic Cultures*, D K Print World Ltd., New Delhi, 2006

3. R S Sharma, *India's Ancient Past*, OUP, New Delhi, 2006.

4. R S Sharma, *Material Culture and Social Formations in Ancient India*, Macmillan, New Delhi, 1983.
5. R S Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, New Delhi, Macmillan, 1983.
6. Upinder Singh, *A History of Ancient and Early Medieval India: From the Stone Age to the 12th century*, Delhi, Pearson India, 2009.
7. D N Jha, *Ancient India in Historical India*, Manohar Publishers, Delhi, Reprint, 2012.
8. D N Jha, Early India, A Concise History (From the Beginning to the Twelfth Century), Manohar, Delhi, 2005.
9. D N Jha, ed., *The Feudal Order: State, Society and Ideology in Early Medieval India*, New Delhi, Manohar, 2003.
10. A S Altekar, *State and Government in Ancient India*, Delhi, Motilal Banarasidass, 1966.
11. R C Majumdar, H C Raychaudhuri, Kalikinkar Datta, *An Advanced History of India*, Macmillan, 2011.
12. R C Majumdar, H C Raychaudhuri, Kalikinkar Datta, *An Advanced History of India*, Macmillan, 2011.
13. Romila Thapar, *Ashoka and the Decline of the Mauryas*, OUP, Delhi, 1978
14. Romila Thapar, *The Penguin History of Early India: From origins to AD 1300*, Penguin Random House, Haryana 2003.
15. Sastri, K.A. Nilakantha, *A History of South India, From Prehistoric Times to the Fall of Vijayanagar*, Fourth Edition, UK, OUP, 1997.
16. R C Majumdar (ed.), *The History and Culture of The Indian People*, (relevant Volumes), Mumbai, Bharatiya Vidya Bhavan.

MATHEMATICS CORE
Semester 1 Paper 1
Paper Name/Title: Classical Algebra
Paper Code: MAT-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100
Prerequisites: *Mathematics in 10+2 or equivalent standard*

Course Objectives: The main goal of this course is to introduce the basic tools of mathematical logic, set theory and functions, the fundamental concepts and tools of complex numbers, theory of equations, matrices, and the matrix method for solving linear equations.

Course Learning Outcomes: This course will enable the students to:

- Understand logical statements, proofs in mathematics, basic set theory and functions.
- Employ De Moivre's theorem to solve numerical problems. Learn the fundamental concepts of exponential, logarithmic, trigonometric and hyperbolic functions of complex numbers.
- Learn how to find the nature of the roots of a given polynomial equation by Descartes' and Sturm's rules, also learn about symmetric functions of the roots and solutions of cubic equations.
- Recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix.

UNIT 1: Statement and logic, Statement with quantifiers, Compound statements, Implications, Proofs in Mathematics; Sets, Operation of sets, Family of sets, Power sets, Cartesian Product; Functions, one-one, onto functions and bijections, Composition of functions, Inverse of a function, Image and inverse image of subsets.
Textbook 1: [**Chapters 1-3]** **(No. of classes: 15, Marks: 15)**

UNIT 2: Polar representation of complex number, De Moivre's theorem (both integral and rational index), Roots of complex numbers, n^{th} roots of unity, Application of De Moivre's Theorem, Exponential and logarithmic functions of complex numbers, Complex exponents, Trigonometric functions, Hyperbolic functions.
Textbook 2: [**Chapter 2:** Sections 2.7-2.16**]** **(No. of classes: 15, Marks: 15)**

UNIT 3: Algebraic equations, Deductions from the fundamental theorem of classical algebra, Polynomial equations with real coefficients, Descartes' rule of signs, Sturm's method, Relations between roots and coefficients, Symmetric functions of roots, Transformation of equations, Cubic equations, Cardon's method of solution of a cubic equation.
Textbook 2: [**Chapter 5:** Sections 5.1-5.2 (excluding 5.2.5, 5.2.6), 5.3 (excluding 5.3.1-5.3.3), 5.4-5.6, 5.11**]** **(No. of classes: 15, Marks: 15)**

UNIT 4: Row Echelon form and Rank of a matrix, Reduced row Echelon form, Consistency of linear systems, Solutions of system of homogeneous and non-homogenous linear equations
Textbook 3: [**Chapter 2:** Sections 2.1-2.5**]** **(No. of classes: 15, Marks: 15)**

Textbooks:

1. Kumar, A., Kumaresan, S., Sarma, B.K. *A Foundation Course in Mathematics.* Narosa Publishing House Pvt. Ltd., 2018.
2. Mappa, S.K. *Higher Algebra (Classical)*. Levant Books, 2019.
3. Meyer, C.D. *Matrix Analysis and Applied Linear Algebra*. Society for Industrial and Applied Mathematics (SIAM), 2023.

Reference Books:

1. Dickson, L.E. *First Course in The Theory of Equations*. The Project Gutenberg eBook, 2009.
2. Gilbert, W.J. & Vanstone, S.A. *Classical Algebra.* Waterloo Mathematics Foundation, 2000.
3. Andreescu, T. & Andrica, D. *Complex Numbers from A to…Z.* Birkhauser, 2014.
4. Halmos, P.R. *Naive Set Theory*, Undergraduate Texts in Mathematics, Springer, 2013.

PHILOSOPHY CORE
Semester 1 Paper 1
Paper Name/Title: Ancient Indian Thought (Vedic)
Paper Code: PHI-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Unit No	Unit Content	No of Classes	Marks
I: (Vedas)	-Introduction to Vedas -Saṃhita: Meaning, Theology, Cosmology, Ethics -Brāhmaṇas: Meaning, General Character, Theory of Sacrifice, Ethics	15	25
II: (Vedas & Vedāṅgas)	-Āraṇyakas: Meaning -Upaniṣads: Meaning, Doctrines -Vedāṅgas,: Śikṣā,, Chandas, Vyākaraṇa, Nirukta, Jyotiṣa, Kalpa ,	15	25
III: (Smriti and Epics)	-Manusaṃhita: Dharma -Mahābhārata: Religion, Ethics -Rāmāyaṇa: Idea of Perfect Life	15	25
IV: (Pūrāṇas)	-Meaning, Origin -Content - Ethics	15	25

Total Classes: 60

- **Reading list:**

Chatterjee, S.C. and D.M. Dutta : *An Introduction to Indian Philosophy,* Rupa Publications India Pvt. Ltd., 2007

Dasgupta, S. N. : *History of Indian Philosophy. Volume I* , Cambridge at the University Press, 1922

De, S.K., U. N. Ghosal, A. D. Pusalker, R.C. Hazra (eds) : *The Cultural Heritage of India. Volume III* , The Ramakrishna Mission Institute of Culture, Calcutta, 2018 (reprint)

Keith, A. B. : *The Religion and Philosophy of the Veda and Upaniṣads. Volume II* , Gyan Publishing House, New Delhi, 1925

Radhakrishnan, S. : *Indian Philosophy. Volume I* , Oxford University Press, New Delhi, 1989

Sinha, J. N. : *Indian Philosophy. Volume I* , New Central Book Agency; (2nd Revised edition), 2014.

Winternitz, M. : *A History of Indian Literature. Volume I,* Motilal Banarsidass publishers Pvt. Ltd., 2009 (reprint)

- **Graduate Attributes**

i. Course Objectives :

-The course introduces the students to thoughts which were available in ancient India.

-The course introduces the ideas and concepts which helped systems of Indian Philosophy to develop.

-The course introduces the students to the objectives towards which knowledge was directed in Ancient India.

ii. Learning Outcomes:

- At the completion of the course, a student is expected to be able to articulate the distinct areas of thoughts of Ancient India.

- At the completion of the course, a student is expected to be able to determine the characteristics/ distinguishing marks of a specific area of thought in Ancient India.

- At the completion of the course, a student is expected to be able to identify/ trace ideas of ancient India that have continued.

Particulars of Course Designer (Name, Institution, email id): Mr. Ganesh Dao, B. Borooah College (Autonomous), ganeshdao1993@gmail.com

PHYSICS CORE
Semester 1 Paper 1
Paper Name/Title: Mathematical Physics-I, Mechanics & Properties of Matter
Paper Code: PHY-MJ/MN-01-B-01-04
Credits = 4 (Theory 3 Practical 1)
(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100
Total no. of Classes: 45

i. Course Objectives:

This course includes the preliminary concepts of Mathematical Physics, Mechanics, and Properties of Matter to prepare students for solving problems using mathematical techniques. The basic objectives of the course are to introduce essential primary concepts in Mathematical Physics, such as the vector calculus and curvilinear coordinates, which are required for developing insight into the theories of physics. Additionally, this course builds new ideas while reviewing school-level principles of mechanics from a more sophisticated perspective. This course introduces the concepts of reference frames, systems of particles, collisions in the center of mass frame, preliminary idea of central force motion, two body problem and some basic properties of matter, which will equip students with the tools required for applying the concepts of physics in practical problem-solving and visualization of these concepts through some laboratory practices.

ii. Course Learning Outcomes:

On successful completion of the course, students will be able to:

1. Understand the concept of scalar field, vector field, gradient of scalar field, divergence and curl of vector fields, which play a central role in developing insights into the theories of physics.
2. Understand the functions of more than one variable and the concept of partial derivatives.
3. Perform line, surface and volume integration and apply Green's, Stokes' and Gauss's Theorems to compute these integrals and apply these to physics problems.
4. Develop insights about reference frames and laws of physics in rotating coordinate systems.
5. Understand the basics of central force motion and two-body problem
6. Understanding the translational and rotational dynamics of a system of particles.
7. Learn properties of matter in various problems of physics, technology and engineering.

iii. Course Outline

Theory (Total no. of classes: 45)

Part A: Mathematical Physics-I (Theory) Credit: 01

Unit-I: Vector Calculus (Lectures: 10)

Scalar and vector fields, Derivatives of vector functions (physical examples- velocity, centripetal acceleration of a point in circular motion), Directional derivative, Gradient of a scalar field (example of Newton's gravitational force as gradient of a scalar potential), Gradient as normal vector to a surface, Divergence and curl of a vector field- solenoidal and irrotational vector fields, Laplacian operator (physical problems –Laplacian of gravitational potential, divergence of central force).

Vector identities, Vector integration, Line integral (physical example- work done by a force, path dependence/independence and concept of conservative force), Surface and volume integrals, Concept of vector flux, Gauss divergence theorem and Stokes theorem (statement only).

Unit-II: Curvilinear Coordinates (Lectures: 05)

Introduction to curvilinear coordinates, Examples of spherical, cylindrical and plane polar

coordinates. Line, surface and volume elements, transformation from Cartesian to curvilinear coordinates (spherical and cylindrical), Gradient, divergence and curl in spherical and cylindrical coordinates.

Part B: Mechanics and Properties of Matter (Theory) Credit: 02

Unit-III: Reference frames (Lectures: 05)

Inertial frames, Non-inertial frames and fictitious forces. Uniformly rotating frame, Laws of physics in rotating coordinate systems, Centrifugal force, Coriolis force and its applications

Unit-IV: Work and Energy (Lectures: 03)

Work and kinetic energy theorem, Conservative and non-conservative forces, Potential energy, Force as gradient of potential energy, Work and potential energy, Work done by non-conservative forces, path dependent work

Unit-V: Central Force and Gravitation (Lectures: 06)

Characteristics of central force, Two-body problem and its reduction to one body problem, Kepler's laws, Gravitational potential and fields due to spherical body: hollow and solid spheres.

Unit –VI: System of Particles (Lectures: 03)

Dynamics of a system of particles, Centre of mass, Elastic and inelastic collisions between particles, Centre of mass and laboratory frames

Unit –VII: Dynamics of Rigid bodies (Lectures: 07)

Rotational motion, Principle of conservation of momentum, Torque, Moment of inertia of rectangular lamina, disc, cylindrical and spherical bodies, Rigid body motion, Kinetic energy of rotation, motion involving both translation and rotation.

Unit-VIII: Properties of Matter (Lectures: 06)

Relation between elastic constants, Twisting torque on a cylinder or wire, Cantilever, Kinematics of moving fluids: Poiseuille's equation for flow of a liquid through a capillary tube

Laboratory **Credit: 01**

Laboratory (Total no. of classes: 15)

(At least four from the following)

1. To study the motion of spring and calculate (a) spring constant and (b) rigidity modulus.
2. To determine coefficient of viscosity of water by capillary flow method (Poiseuille's method).
3. To determine the Young's modulus of the material of a wire by Searle's apparatus.
4. To determine the modulus of rigidity of a wire (static method).
5. To determine the value of g using bar pendulum.
6. To determine *g* and velocity for a freely falling body using digital timing technique.

Reading list:

1. Advanced Engineering Mathematics; E. Kreyszic, John Wiley & Sons (New York).
2. Essential Mathematical Methods for the Physical Sciences; K.F. Riley and M.P. Hobson, Cambridge University Press.
3. An Introduction to Mechanics, D. Kleppner and R. J. Kolenkow, Tata McGraw-Hill.
4. Physics, R. Resnick, D. Halliday and J. Walker, John Wiley & Sons.
5. Theoretical Mechanics, M. R. Spiegel, Tata McGraw Hill.
6. Mechanics; D. S. Mathur, S. Chand & Company Limited.
7. Introduction To Special Relativity, Robert Resnick, Wiley

POLITICAL SCIENCE CORE
Semester 1 Paper 1
Paper Name/Title: Introduction to Political Theory
Paper Code: POL-MJ/MN-01-B-01-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Course Objectives:

- This course aims to introduce the students to the idea of political theory, its history and approaches and an assessment of its critical and contemporary trends.
- It is also designed to introduce the basic concepts of political theory.
- The course also attempts to reconcile political theory and practice through reflections on the ideas and practices related to democracy.

Course outcomes:

1. After completing the course students will be better equipped to understand the key concepts in political theory and various related conceptual categories.
2. They will also be in a better position to engage in application of concepts and understand the limitations.
3. It will also help in developing critical thinking regarding the functioning of the political system in relation to the context the students are situated in.
4. The foundation for understanding the contemporary political developments would also be laid down by the course

Unit I: Political Science: An Introduction

- Meaning: Political Science, Politics, Political Theory
- Nature and scope of Political Science
- Traditional and Modern Approaches to the study of Political Science
- Relevance of Political Theory

Unit II: Different Perspectives of Political Theory

- Liberal
- Marxist
- Feminist
- Post-modern

Unit III: Key Concepts

- State: Evolution, Nature and Component, Development
- Rights
- Liberty
- Equality
- Justice

Unit IV: Understanding Democracy

- Concepts of Democracy
- Types of Democracy
- Critique of Democrcay

Reading List:

Bhargava, R. (2008). What is Political Theory. In R. Bhargava & A. Acharya (Eds.), *Political Theory:*

An Introduction. New Delhi: Pearson Longman
Mukherjee, S., & Ramaswami, S. (1999). What is Political Theory. In S. Mukherjee & S. Ramaswami, *A History of Political Thought: Plato to Marx* . New Delhi: Prentice Hall of India Pvt. Ltd.
Mukhopadhyay, A. K. (2019). *An Introduction to Political Theory*. New Delhi: Sage Publications.
Sabine, G. H. (1939). What is A Political Theory? *Journal of Politics*, 1(1).
Asirvatham, E., & Misra, K. K. (1998). *Political Theory*. Upper India Publishing.
Gauba, O. P. (2009). *An Introduction to Political Theory*. Macmillan Publishers India Ltd.
Menon, N. (2008). Gender. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.
Acharya, A. (2008). Equality. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction.* New Delhi: Pearson Longman.
Das, S. (2008). State. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.
Menon, K. (2008). Justice. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.
Talukdar, P. S. (2008). Rights. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.
Sen, A. (2003). Freedom Favours Development. In R. Dahl, I. Shapiro, & A. J. Cheibub (Eds.), *The Democracy Sourcebook.* Cambridge, Massachusetts: MIT Press.
Sethi, A. (2008). Freedom of Speech and the Question of Censorship. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.
Srinivasan, J. (2008). Democracy. In R. Bhargava & A. Acharya (Eds.), *Political Theory: An Introduction*. New Delhi: Pearson Longman.

SANSKRIT CORE

Semester 1 Paper 1

Paper Name/Title: Introduction to Sanskrit Literature

Paper Code: SAN-MJ/MN-01-B-01-04

Credits: 4 (Theory-4 Practical: Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

COURSE OBJECTIVES:

This course aims to get students acquainted with the journey of Sanskrit Literature from Vedic period. It also intends to give an outline of the history and background of Sanskrit language and Devanagari script. It also aims to give a basic knowledge of different Shastric traditions through which students will be able to know the different genres of Sanskrit Literature and Sastras.

UNIT NO	UNIT CONTENT	CREDIT	No. of Classes	MARKS
I	**Origin and Development of Sanskrit Language and *Devanāgiri Lipi*:** Origin of Sanskrit Language, Sanskrit as a sub brunch of IE Family of Languages, Different Stages of Development of Sanskrit Languages, Introduction to *Devanāgari lipi*	1	08	20
II	**Introduction to Vedic Literature :** *Samhitā-Rik-Yajur-Sāma-Atharvaveda*, Time, Subject-matter, Brief Introduction to *Brāhmana, Āranyaka, Upanisads* and *Vedāngas*	1	12	25
III	**Epics and Purāṇas :** ***Rāmāyaṇa*** (Time, Subject matter, *Rāmāyaṇa* as an *Ādikāvya*, Influence of the *Rāmāyaṇa* on later Sanskrit literature) ***Mahābhārata***: Different Stages of Development, Encyclopedic Nature of the *Mahābhārata*, Influence of the *Mahābhārata* on later Sanskrit literature. ***Purāṇa***: Names of the Purāṇas**,** Division of Purāṇas, Subject matter, Characteristics and Social-Cultural and Historical Importance.	1	20	25
IV	**General introduction to Śāstras :** ***Vyākaraṇa, Darśaṇa, Sāhityasāśātra* :** Brief History of *Vyākaraṇasāśātra*, Introduction to the Major Schools of Indian Philosophy, Introduction to Sanskrit Poetics, Various names of *Sāhityasāstra*, Major works on Sanskrit poetics by Bharata, Bhāmaha, Daṇdin, Vāmana, Ānandavardhana, Mammata, Viśvanātha, Rājaśekhara.	1	20	30

COURSE OUTCOMES:

This course will provide the students to understand the different genres of Sanskrit literature to estimate the values of our ancient scripters and to know the different schools of Indian Philosophy and the basic śāstras. After going through this paper students will be able to grasp the linguistic significance of Sanskrit and its scripts.

Suggested Books :

1. A Handbook of Sanskrit Philology, S R Banerjee , , Sanskrit Pustak Bhandar, Kolkatta.
2. History of Sanskrit Literature, A B Keith , MLBD, New Delhi.
3. Krishnamacharir M., *History of Classical Sanskrit Literature*, MLBD, New Delhi.
5. Shastri Gaurinath, *A Concise History of Sanskrit Literature*, MLBD, New Delhi.
6. Winternitz M., *History of Indian Literature (Vol I-III*), MLBD, New Delhi.
7. Sharma Thaneswar ,*Sanskrit Sahityar Itibritta*, Chandra Prakash, Panbazar, Guwahati.
8. Goswami Dev Haramohan , *Sanskrit Sahityar Buranji*, Book, land, Panbazar, Guwahati.

STATISTICS CORE
Semester 1 Paper 1
Paper Name/Title: Statistical Methods & Finite Difference
Paper Code: STA-MJ/MN-01-B-01-04
Credits = 4 (Theory 3 Practical 1)
(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100
Important Note: Prerequisite for major in Statistics is Mathematics AT 10+2

Course Objectives: The course will help students to build up conceptual and theoretical foundation of Statistics. The students will understand about different data sets, their collection, presentation and simple statistical analysis. The students would also learn about numerical analysis of data.

Course Outcomes (CO): After completing the course, the students would be able to

CO1: Understand the fundamental concepts in descriptive statistics including handling of different data sets.

CO2: Analyse data sets by calculating measures of central tendency, dispersion, skewness and kurtosis.

CO3: Analyse the relationship between variables by using Correlation and Regression.

CO4: Apply the least square method for fitting of Regression lines.

CO5: Understand and apply the concepts of finite difference in different situations

Unit 1: Basic Statistical Theory [08 lectures]
Definition and scope of Statistics, concepts of statistical population and sample.
Data: quantitative and qualitative, attributes, variables, scales of measurement - nominal, ordinal, interval and ratio. Collection and Scrutiny of Data: Primary data- sources, designing questionnaire and schedule; Secondary data – major sources including some government publications. Presentation of data: tabular, diagrammatic and graphical, boxplot, stem and leaf chart.

Unit 2: Measures of Central Tendency and Dispersion [14 lectures]
Measures of central tendency: Introduction, Mean (Arithmetic, Geometric, Harmonic), Median, Mode, Partition values - Quartiles, Deciles and Percentiles.
Measures of dispersion: Introduction, Range, Quartile Deviation, Mean Deviation, Standard Deviation. Coefficient of Variation. Moments - Raw, Central, Sheppard's correction for moments, Idea of Factorial and Absolute Moments. Skewness and Kurtosis.

Unit 3: Bivariate Data [09 lectures]
Definition, Scatter diagram, simple correlation, rank correlation. Simple linear regression. Principle of least squares and fitting of Linear, Quadratic, and Exponential Curves.

Unit 4: Calculus of Finite Difference [14 lectures]
Finite difference: definition, Operators Δ & E, their properties, difference table, missing terms. Fundamental theorem of finite difference, Interpolation - Definition, Newton's Forward and Backward Interpolation Formula. Divided Difference - Definition, divided difference table, Newton's divided difference formula, Lagrange's Interpolation formula. Numerical Integration - Introduction, General Quadrature formula, Trapezoidal, Simpson's $\frac{1}{3}rd$ and $\frac{3}{8}th$ rules.

Practical/Lab [15 Lectures]
1. Diagrammatic representation of data.

2. Graphical representation of data.
3. Problems based on measures of central tendency.
4. Problems based on measures of dispersion.
5. Problems based on combined mean, variance and coefficient of variation.
6. Problems based on moments, skewness and Kurtosis.
7. Karl Pearson's Coefficient of Correlation.
8. Spearman rank correlation with and without ties
9. Estimation of Regression lines.
10. Fitting of polynomials and exponential curves.
11. Problems based on Newton's forward and backward interpolation.
12. Problems based on Newton's divided difference interpolation formula.
13. Problems based on Lagrange's interpolation formula.
14. Problems based on Numerical Integration.

Suggested Reading:

1. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol I, The World Press, Kolkata.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd.
4. Gupta S.C and Kapoor V.K (2020): Fundamentals of Mathematical Statistics, 12th Edition, Sultan Chand & Sons.
5. Medhi, J., Statistical Methods: An Introductory text (New Age International (P) Ltd. 2000).
6. Mukherjee, Kr. Kalyan(1990): Numerical Analysis. New CentralBook Agency.
7. Sastry, S.S. (2000): Introductory Methods of Numerical Analysis, 3rdedition, Prentice Hall of India Pvt. Ltd., New Delhi.
8. Saxena H. C. (2001). Finite differences and Numerical Analysis. S. Chand and Company. New Delhi.
9. Gupta P.P, Malik G.S. and Gupta S.,(2006), Calculus of Finite Differences and Numerical Analysis, 34th Edn, Krishna Prakashan Media (P) Ltd, Meerut.

ZOOLOGY CORE
Semester 1 Paper 1
Paper Name/Title: Diversity of Non-Chordates
Paper Code: ZOO-MJ/MN-01-B-01-04
Credits = 4 (Theory 3 Practical 1)
(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100

THEORY	**HOURS**
Unit 1 Protista: General characteristics and classification up to classes, Locomotion and reproduction in Protista Metazoa: Evolution theories of symmetry and segmentation Porifera: General characteristics and classification up to classes, Canal system and spicules in sponges Cnidaria: General characteristics and classification up to classes, Polymorphism in Cnidaria, Corals and coral reef formation Ctenophora: General characteristics and classification up to classes, Affinities with other phylum	17
Unit 2 Platyhelminthes: General characteristics and classification up to classes, Life cycle and adaptations of *Taeina solium* and *Fasciola hepatica* Nemathelminthes: General characteristics and classification up to classes, Life cycle and adaptations of *Ascaris lumbricoides* and *Wuchereria bancrofti* Annelida: General characteristics and classification up to classes, evolution of coelom and metamerism, Excretion in Annelida	12
Unit3 Arthropoda: General characteristics and classification up to classes, Larval forms of Crustacea, Vision and respiration in Arthropoda, Metamorphosis in insects Onychophora: General characteristics and affinities Mollusca: General characteristics and classification up to classes, Torsion and detorsion in Gastropoda, Pearl culture, Larval stages Echinoderm: General characteristics and classification up to classes, Water vascular system of Echinodermata, Larval stages	16

Practical (30 hours)

1. Study of the whole mount of *Euglena*, *Amoeba* and *Paramecium* collected from different water sources.
2. Study of minimum of two representatives (specimen/slide/model)of each phylum of non-chordates.
3. Study of larval forms of Arthropoda /Echinodermata
4. T.S. through pharynx, gizzard and typhlosolar intestine of earthworm
5. Project report on life cycle of helminth parasite

Suggested Readings:

1. Ruppert, E.E. and Barnes, R.D. (2006). Invertebrate Zoology, 8th Edition. Holt Saunders International Edition.
2. Pechenik, J.(2015).Biology of the Invertebrates.7thEdition, McGrawHill
3. Schierwater, B. & DeSalle, R. (2021). Invertebrate Zoology: A Tree of Life Approach. 1stedition, CRC Press
4. Jordan, K. and P.S.Verma(2019).Invertebrate Zoology, S.Chandand Co.Ltd.
5. Kotpal, R.L.(2020).Modern text book of Zoology, Invertebrates,12th Edition, Rastogi Publications

ABILITY ENHANCEMENT COURSE (MIL ASSAMESE)
Semester 1 Paper 1
Paper Name/Title: যোগাযোগমূলক অসমীয়া (Jogajogmulak Asomiya)
Paper Code: AEC-01-B-01-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Course Objectives:

১.এই কাকতখনৰ উদ্দেশ্য অসমীয়া ভাষাৰ ব্যৱহাৰিক জ্ঞানৰ আভাস দিয়া।
২. এই কাকতখনে ছাত্ৰ-ছাত্ৰীক ভাষাৰ সাধাৰণ জ্ঞানৰ সৈতে উচ্চাৰণৰ জ্ঞান লোৱাত সহায় কৰিব।
৩.কাকতখনে ছাত্ৰ-ছাত্ৰীসকলক আখৰ জোঁটনি সম্পৰ্কে সচেতন কৰি তুলিব।
৪. উপযুক্ত শব্দ আৰু বাক্যৰ প্ৰয়োগেৰে কথন আৰু লিখন উভয়তে দক্ষ হোৱাত সহায় কৰিব।
৫. কাকতখনে ছাত্ৰ-ছাত্ৰীসকলৰ মনত আনুষ্ঠানিক আৰু অনানুষ্ঠানিক লিখনৰ মাজৰ পাৰ্থক্য স্পষ্ট কৰিব।
৬. কাকতখনে কৰ্মক্ষেত্ৰত অসমীয়া লিখনৰ বাবে ছাত্ৰ-ছাত্ৰীসকলক সাজু কৰিব।

Unit No	Unit Content	No of Classes	Internal Examination Marks	External Examination Marks
১	**ভাষাজ্ঞানঃ ধ্বনি, বৰ্ণ, আখৰ আৰু অক্ষৰৰ জ্ঞান, ধ্বনি উচ্চাৰণ, আখৰ জোঁটনি আৰু যতি চিহ্নৰ জ্ঞান, প্ৰত্যয় আৰু বিভক্তিৰ ব্যৱহাৰ, সুৰলহৰ, কথন কৌশল**	১২	১০	১৫
২	**উপযুক্ত শব্দ-প্ৰয়োগ আৰু বাক্য-প্ৰয়োগৰ জ্ঞানঃ বাক্যত পদৰ ব্যৱহাৰ, পদ-সংগতি, আকাংক্ষা, আসত্তি, যোগ্যতা, বাক্যৰ প্ৰকাৰ আৰু ব্যৱহাৰ**	১২	১০	১৫
৩	**লিখন কলাৰ জ্ঞানঃ মিতব্যয়িতা (Economy), স্বচ্ছতা (Transparency), ভিন্নতা (Variety), ঐক্যভাৱ (Harmony)**	১২	১০	১৫
৪	**আনুষ্ঠানিক আৰু অনানুষ্ঠানিক লিখনৰ ধাৰণা, আবেদন, বিজ্ঞাপন, নিবিদা লেখন, বাতৰি লেখন**	১২	১০	১৫

পঠন-সামগ্ৰীঃ

নিকা অসমীয়া ভাষা- মহেশ্বৰ নেওগ
অসমীয়া ব্যাকৰণ প্ৰবেশ-গোলোকচন্দ্ৰ গোস্বামী
অসমীয়া ৰচনা সংকলন- তুলতুল বৰুৱা (সম্পা.)
ধ্বনিবিজ্ঞানৰ ভূমিকা- গোলোকচন্দ্ৰ গোস্বামী
যোগাযোগ কলা- নীৰাজনা মহন্ত বেজবৰা
অসমীয়া আখৰ জোঁটনিৰ কথা-শিৱনাথ বৰ্মন,
অসমীয়া আখৰ জোঁটনি আৰু লিপ্যন্তৰ পদ্ধতি-গুৱাহাটী বিশ্ববিদ্যালয়
অসমীয়া ভাষা-সাহিত্য চৰ্চাকাৰীসকলৰ হাতপুথি- ৰমেশ পাঠক
ব্যৱহাৰিক অসমীয়া ব্যাকৰণ-উপেন ৰাভা হাকাচাম
বিজ্ঞানলেখকৰ হাতপুথি- দীনেশ চন্দ্ৰ গোস্বামী
কি লিখবেন, কেন লিখবেনঃ নীৰেন্দ্ৰনাথ চক্ৰবৰ্তী
The Art of Writing: Peter Yang

ABILITY ENHANCEMENT COURSE (MIL BENGALI)

Semester 1 Paper 1

Paper Name/Title: বাংলা ভাষা -সাহিত্য, গণমাধ্যম ও প্রযুক্তিগত সম্ভাবনা।

Paper Code: AEC-01-B-02-04

Credits = 4 (Theory 4 Practical Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

UNIT	TOPIC	NO. OF CLASSES	MARKS
1.	**Comprehension** (বোধ পরীক্ষণ)	10	10
2.	**প্রমিত বাংলা বানান ও বাক্য** বাংলা বানান বিধি, অশুদ্ধি সংশোধন, বাংলা বাক্যের গঠন, বাগধারা	10	10
3.	**ছোট্ট রামায়ণ** (উপেন্দ্রকিশোর রায়চৌধুরী)	10	10
4.	**সৃজনশীল লেখন** প্রতিবেদন লিখন, সারসংক্ষেপ লিখন, পাঠ প্রতিক্রিয়া লিখন, ব্যঙ্গাত্মক চিত্রের শিরোনাম লিখন, সংবাদের শিরোনাম লিখন,	10	10
5.	বিজ্ঞাপনের উদ্দেশ্য ও কৌশল, বিজ্ঞাপনের ধারা, প্রকারভেদ ও লিখন পদ্ধতি (সংবাদপত্র/সাময়িক পত্র/হ্যান্ডবিল / প্রচারপত্র/ রেডিও/টেলিভিশন/ সিনেমা, সাইন বোর্ড।	10	10
6.	**ইন্টারনেটের ব্যবহার** ইন্টার নেট সম্পর্কে প্রাথমিক ধারণা, ব্রাউজিং এর সংজ্ঞা ও স্বরূপ, ই-লাইব্রেরী, ই-জার্নাল এর প্রাথমিক পরিচয়।	10	10

ABILITY ENHANCEMENT COURSE (MIL HINDI)
Semester 1 Paper 1
Paper Name/Title: हिंदी व्याकरण एवं सम्प्रेषण कौशल
Paper Code: AEC-01-B-03-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

छमाही :प्रथम
कोर्स का नाम : हिंदी व्याकरण एवं सम्प्रेषण कौशल
कुल अंक :100 **बाह्य परीक्षण :60** **आंतरिक परीक्षण :40**
सैद्धांतिक क्रेडिट: **04** व्यावहारिक क्रेडिट: **00**

इकाई	क्रेडिट	पाठ्य – विषय	कक्षा संख्या	अंक (बाह्य परीक्षण+आंतरिक परीक्षण)
1	**1**	**हिंदी व्याकरण एवं रचना:** संज्ञा,सर्वनाम, विशेषण, क्रिया और अव्यय का परिचय	**15**	**25 (20+5)**
2	**1**	**हिंदी शब्द रचना :** लिंग, वचन, संधि, समास, उपसर्ग, प्रत्ययतथा पर्यायवाची शब्द, विलोम शब्द, अनेक शब्दों के लिए एक शब्द	**15**	**25 (20+5)**
3	**1**	**हिंदी वाक्य रचना :** अर्थ एवं रचना की दृष्टि से वाक्य भेद,पदक्रम, वाक्य परिवर्तन और वाक्य शुद्धि	**15**	**25 (20+5)**
4	**1**	**सम्प्रेषण :** अवधारणा, महत्त्व, प्रकार; मुहावरे, लोकोक्तियाँ, पल्लवन, संक्षेपण, अपठित गद्यांश, आशु-भाषण, वाद-विवाद साक्षात्कार।	**15**	**25 (20+5)**

द्रष्टव्य: आंतरिक परीक्षण के **अंतर्गत 10 अंक के लिए मौखिकी** रहेगी जिसके तहत आशु भाषण एवं साक्षात्कार संबंधी प्रश्नोत्तर की व्यवस्था होगी। शेष **30** अंक के लिए सत्रीय परीक्षा, गृहकार्य, समूह में चर्चा आदि की व्यवस्था रहेगी।

संदर्भ ग्रंथ :

1. आधुनिक हिंदी व्याकरण और रचना - डॉ. वासुदेवनन्दन प्रसाद, भारती भवन, पटना
2. हिंदी : एक मौलिक व्याकरण - प्रो. रमाकांत अग्निहोत्री, वाणी प्रकाशन, नई दिल्ली
3. हिंदी व्याकरण -पं कामताप्रसाद गुरु, राजकमल प्रकाशन, नई दिल्ली
4. मानक हिंदी का पारम्परिक व्याकरण - शुकदेव शास्त्री, साहित्यागार, जयपुर
5. हिंदी व्याकरण विमर्श – तेजपाल चौधरी, वाणी प्रकाशन, नई दिल्ली
6. सम्प्रेषण कला – अरुण चतुर्वेदी, केन्द्रीय हिंदी संस्थान, आगरा
7. हिंदी भाषा सम्प्रेषण और संचार – अनिरुद्ध कुमार सुधांशु एवं महांथी प्रसाद यादव, श्री नटराज प्रकाशन, दिल्ली

- **पूर्व योग्यता:** हिंदी सहित **10वीं** कक्षा उत्तीर्ण
- **स्नातक गुण:**

कोर्स का लक्ष्य: इस पाठ्यक्रम का मूल लक्ष्य विद्यार्थियों को हिंदी भाषा की गहरी समझ प्रदान करना है। इसके अध्ययन से विद्यार्थी हिंदी भाषा की व्याकरणिक समझ, शब्द एवं वाक्य रचना का ज्ञान प्राप्त करेंगे। साथ ही सम्प्रेषण के विविध प्रकारों, जैसे मुहावरे, लोकोक्तियाँ, संक्षेपण, साक्षात्कार आदि के माध्यम से उनकी अभिव्यक्ति क्षमता का विकास करना भी इस पाठ्यक्रम का उद्देश्य है।

शिक्षण उपलब्धि: इस पाठ्यक्रम के अध्ययन के उपरांत सम्बद्ध विद्यार्थी हिंदी भाषा की संरचना, व्याकरण तथा शब्द-विन्यास की स्पष्ट समझ प्राप्त कर सकेंगे। वे औपचारिक और अनौपचारिक रूप से शुद्ध और प्रभावशाली भाषा का व्यवहार सीख सकेंगे। साथ ही संप्रेषण के विभिन्न रूपों के अभ्यास के जरिए उनकी अभिव्यक्ति क्षमता और सृजनात्मक लेखन कौशल में वृद्धि होगी।

❖ आवश्यक कक्षाओं की संख्या: **60** प्रत्यक्ष कक्षाएँ: **60** अप्रत्यक्ष कक्षाएँ: **0**

ABILITY ENHANCEMENT COURSE (SANSKRIT)
Semester 1 Paper 1
Paper Name/Title: Communicative Sanskrit
Paper Code: AEC-01-B-04-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

COURSE OBJECTIVES:

This course intends to introduce the preliminary knowledge of Sanskrit language. This also aims to focus on the speaking skill of Sanskrit among the students. This course also intends to build Sanskrit speaking habits among the students.

COURSE OUTCOME:

After going through this course, students will be able to understand the basic concept of Sanskrit language. They will also be able to develop the Sanskrit speaking skill. After going through this course, the students will be able to use more Sanskrit words. They will be able to grow confidence in Sanskrit speaking skill in broad platforms also.

UNIT NO.	UNIT CONTENT	CREDIT	NO OF CLASSES	MARKS
I	Introduction to Sanskrit Alphabets and Vedic Svaras	0.5	10	15
II	Places of Pronunciation of Sanskrit Alphabets, Sanskrit Vocabulary	0.5	10	15
III	Sanskrit Speaking Skill (Self Introduction through ten sentences, Ten sentences on any topic like own college, own city/town/village, own state, own country)	1	10	20
IV	Types of Address frequently used in Sanskrit Conversation	0.5	06	15
V	The technique of Presenting Numerical Words and the Idea of Time in Sanskrit	0.5	06	15
VI	Sanskrit Speaking Habits through the Practice of Announcement, Anchoring and News Reading in Sanskrit	1	10	20

SUGGESTED BOOKS:

1. *Higher Sanskrit Grammar*, M R Kale, MLBD, Delhi
2. *Samagra Vyakara Kaumudi*, Ishwarchandra Vidyasagara
3. *Sanskrit Vyakaran Surabhi*, Rajendra Nath Sharma, M L Publisher, Rajgarh, Guwahati
4. *Students' guide to Sanskrit Composition*, V S Apte, Chowkhamba Sanskrit Series, Varanasi.
5. *Teach Yourself Sanskrit*, Edited by Y Kutumbasastri, Rastriya Sanskrit Sansthan, New Delhi.

ABILITY ENHANCEMENT COURSE (ALTERNATIVE ENGLISH)
Semester 1 Paper 1
Paper Name/Title: Voices of the World: Writings in English from Select Regions
Paper Code: AEC-01-B-05-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100
Contact + Tutorial Classes: 60

Learning Objectives: The course aims at familiarising students with writings in English, the additional official language of India and the current dominant lingua franca of the world. Unit 1 aims at acquainting learners with the diversity of English literature as well as the position of English in relation to other languages, with special reference to India. This unit will also introduce learners to possibilities of enhancing linguistic ability through literary texts. The subsequent units of the paper (units 2, 3, and 5) aim at introducing learners to texts written in English, representing various genres/subgenres and different cultures of the world. It is envisaged that this exposure will not only develop learners' proficiency in English, especially their reading and writing skills, but will also broaden their horizons of perception.

Learning Outcomes: Learners will become familiar with the variety of texts that make English literature. They will learn about the position of English globally as well as in India as one of the country's many languages. They will develop their reading skills through close analysis of the prescribed texts. Furthermore, they will become acquainted with different styles and techniques of writing and a host of vocabulary in the selected texts which will help them in honing their writing skills. Additionally, the translation included in the syllabus will enable learners to understand a local tale in the light of its English rendition.

Unit 1: Languages and Literatures
Literatures in English; languages of India; English as a global language; first and second languages; place of mother tongue in learning English; literature for language learning

Unit 2: Fiction
Bryan MacMahon: "The Ring"
Nirupama Bargohain: "The Victorious Woman" (translated by Pradipta Bargohain)
O. Henry: "Memoirs of a Yellow Dog"

Unit 3: Poetry
John Keats: "To Autumn"
Nissim Ezekiel: "Goodbye Party for Miss Pushpa T.S."
Margaret Atwood: "This Is a Photograph of Me"

Unit 4: Non-Fiction
Vikram Seth: "An Indian in China" (extracted from *From Heaven Lake: Travels through Sinkiang and Tibet*)
Martin Luther King Jr.: "Letter from Birmingham Jail"
George Orwell: "Books vs. Cigarettes"

Recommended Readings:
Abrams, M. H. and Geoffrey Galt Harpham. *A Glossary of Literary Terms*. 11th ed., CENGAGE Learning, 2013.
Bate, Jonathan. *English Literature: A Very Short Introduction*. Oxford University Press, 2010.
Crystal, David. *English as a Global Language*. 2nd ed., Cambridge University Press, 2003.
Eagleton, Terry. *How to Read Literature*. Yale University Press, 2013.
Krishnaswamy, N. and Lalitha Krishnaswamy. *The Story of English in India*. Foundation Books, 2006.
Young, Tory. *Studying English Literature: A Practical Guide*. Cambridge University Press, 2008.

MULTI DISCIPLINARY COURSE (For Arts Students)
Semester 1 Paper 1
Paper Name/Title: Science in Daily Life
Paper Code: MDC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75
Total number of lectures:45

Objectives of the Course: This course aims at making the students introduced to daily life application and understanding of physical and chemical phenomenon. Students will be able to familiarize about the household electrical connections and devices. Identify and explain the role of commonly used chemicals in daily life such as soaps, detergents, household chemicals and disinfectants.

Course outcome: At the end of the course, the students shall be able to familiarize them with the application of science in daily life and able to understand the household electrical devices and connections, instruments and products. Students will be able to use fuse, tester and MCB to detect fault in household electrical connections. The course will also develop awareness among the students about the social, ethical, and health implications of chemicals and drugs used in daily life. Develop awareness regarding food safety, labeling, and nutritional balance in daily diet.

Course outline:

Unit I: Measurements & physical phenomenon (Lectures 12)

Physical quantities and its measurements, Different scales of measurements: Linear scale, Vernier scale, screw gauge, Reflection, Refraction and dispersion of light, Least distance of distinct vision, Defects of vision in human eye. LASER: basic idea, types and property, applications of LASER in daily life, Introduction to Nanoscience, Some applications of nanoscience in everyday life.

Unit II: Household electrical devices (Lectures 10)

Concepts of current, voltage and resistance, Ohm's law, Power rating of household devices, Conductors & insulators and their applications, Household electricity connections, earthing, Fuse, MCB, Tester, Switch board connection and testing, LED: basic idea and applications.

Unit III: Chemistry in daily life (Lectures 12)

Soap and detergents: Types of soaps and detergents, mechanism of cleaning action. Toothpaste, Shampoo, Perfumes, Deodorants: Ingredients and their effects. Disinfectants and Bleaching Agents: Phenyl, chlorine, hydrogen peroxide. Cooking chemistry: Why onions make you cry, baking soda vs baking powder.

Unit IV: Food chemistry (Lectures 11)

Food Additives: Preservatives, flavouring agents and colouring agents. Nutrients and their chemical nature: Carbohydrates, proteins, fats, vitamins and minerals. Adulteration of food: Common examples and simple detection.

References:

1. A Textbook of Optics, N Subrahmanyam, Brij Lal & M. N. Avadhanulu, S. Chand and Co., (2006)
2. Grob's Basic Electronics, Mitchel Schultz, Mc Graw Hill (2024)
3. A textbook of Applied Electronics, R.S. Sedha–S.Chand (2022)
4. Basic Electronics, B.L Theraja (S.Chand)
5. NCERT text Book of Physics (Class XI & XII)
6. Introduction to Nanoscience and Nanotechnology, An Indian Adaptation, Charles P. Poole Jr. Frank J. Owens, Wiley (2020)
7. FSSAI (Food Safety and Standards Authority of India) booklets on food adulteration and safety
8. MIT Open Course Ware- Kitchen Chemistry: Interactive modules on food and daily life chemistry
9. NCERT Chemistry Textbooks (Class XI & XII)

MULTI DISCIPLINARY COURSE (For Science Students)
Semester 1 Paper 1
Paper Name/Title: Towards Modern Assam
Paper Code: MDC-01-B-02-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75
Total Lectures: 45

Objectives of the Course: The objective of the course "Towards Modern Assam" is to provide students with a basic understanding of the social, cultural, and political developments that shaped modern Assam. It aims to highlight the role of Christian missionaries, the printing press, modern education, and infrastructural changes such as transport, communication, and urbanization. The course also introduces students to key figures who contributed to the making of modern Assam, including writers, artists, social reformers, and political leaders. Through project work, students are encouraged to explore relevant topics and develop research and writing skills, promoting a multidisciplinary understanding of Assam's journey to modernity.

Course outcomes: After successful completion of the course *"Towards Modern Assam,"* students will gain a foundational understanding of the key social, cultural, economic, and political developments that shaped modern Assam. They will be able to critically analyse the impact of significant historical events like the Treaty of Yandaboo, the role of Christian missionaries, the introduction of modern education, and the emergence of print media. Students will understand the beginnings of commercialization through the tea and oil industries and assess the significance of infrastructural developments in transport and communication. They will also explore the emergence of the Assamese middle class and the contributions of important public institutions and reformist organizations. Furthermore, students will evaluate the pioneering roles of eminent figures such as Anandaram Dhekial Phukan, Lakshminath Bezbarua, Gopinath Bordoloi, Chandraprava Saikiani, and Bhupen Hazarika in moulding the path towards modern Assam.

Unit I: Aspects of Modern Assam (Lectures: 15; Marks: 25)

a) Brief overview of the Treaty of Yandaboo
b) Education in Colonial Assam, Print media.
c) Penetration of Industries in Assam: Tea and Oil
d) Development of Transport and Communication: Railways, Waterways and Roadways.

Unit II: Architects of Modern Assam (Part-1) (Lectures: 15; Marks: 25)

a) Role of the Assamese Middle class, emergence of Public Associations: Assam Association, Asomiya Bhasa Unnati Sadhini Sabha, Asom Chatra Sanmilan.
b) Anandaram Dhekial Phukan
c) Lakshinath Bezbarua
d) Bholanath Borooah

Unit III: Architects of Modern Assam (Part-I1) (Lectures:15; Marks: 25)

a) Gopinath Bordoloi
b) Jyotiprasad Agarwala
c) Bhimbor Deori
d) Chandraprava Saikiani
e) Bhupen Hazarika

Reference books:

1. Arupjyoti Saikia, *The Quest for Modern Assam: A History, 1942–2000, Peguin Random House.*

2. Hiren Gohain, Origins of Assamese Middle Class, 2012.s
3. Prafulla Mahanta, Asomiya Madhyabitta Shrenir Itihas, Purbanchal Prakash, Guwahati-21
4. Akhil Ranjan Dutta, Jyotiprasad Agarwala a Revolutionary Cultural Architect of Twentieth Century Assam, Social change, 2012
5. Arunodoir pora Jonakiloi, Dr. Nagen Saikia
6. Akhil Ranjan Dutta, Forcing Prison Doors: Socio Cultural Mission of Bhupen Hazarika, Social Change, 2012.
7. Priyam Goswami, *The History of Assam: From Yandaboo to Partition*, 1826-1947, Orient Longman, Hyderabad, 2021.
8. S L Baruah, *A Comprehensive History of Assam*, Munshiram manoharlal Publishers, 1995.
9. Saied Abu Nasar Ahmed, Rekha Borthakur, *Lakshminath Bezbaruah: As He Viewed Society, Politics and World Affairs*, Purbanchal Prakash, 2023.
10. Dr. Samudra Gupta Kashyap, Assam Tea: glorious 200 years, Publication Board Assam,2024.
11. Dr. Gitashree Tamuly, Bholanath Borooahar Jeebwan Gatha, B. Borooah College, 2023.

VALUE ADDED COURSE
Semester 1 Paper 1
Paper Name/Title: Environmental Studies
Paper Code: VAC-01-B-01-02
Credits = 2 (Theory 2 Practical Nil)
(External Evaluation 30 + Internal Assessment 20): Total Marks 50

Learning Objectives:

- To create awareness about environmental issues and sustainability among business students.
- To understand the interrelationship between environment and business activities.

Learning Outcomes: After successful completion of the course, students will be able to:

- Understand the fundamental concepts of environment, ecosystem, biodiversity, and natural resources.
- Identify and analyse various types of environmental pollution and suggest appropriate control measures.
- Evaluate the impact of environmental problems such as climate change on businesses, economy, and society.
- To promote the development of environmentally responsible business practices.

UNIT 1: INTRODUCTION TO ENVIRONMENTAL STUDIES

- Wide scope of Environmental Studies - Multidisciplinary nature of environmental studies; Research and development in environment; Green advocacy; Green marketing; Green media; Environmental consultancy.
- Importance and significance of Environmental Studies
- Global environmental issues
- Concept of sustainable development

UNIT 2: ECOSYSTEM

- Ecosystem – definition, structure and functions
- Abiotic and biotic components and factors
- Biological effects of temperature
- Importance of Phosphorus cycle and Nitrogen Fixation
- Components and structural features of aquatic and terrestrial ecosystems
- Ecological succession

UNIT 3: ENVIRONMENTAL POLLUTION AND LAWS

- Pollution – Definition; types, causes effects and preventive measures
- Radioactive pollution
- Solid waste management
- Environment Protection Act, 1986; Tribal population and rights
- International agreements – Rio Earth Summit, 1992; Kyoto Protocol, 1997; Paris Agreement, 2015
  Human wildlife conflicts in the context of Assam.

SKILL ENHANCEMENT COURSE (ASSAMESE)
Semester 1 Paper 1
Paper Name/Title: অসমীয়া আখৰ-জোঁটনি (ASAMIYA AKHAR JOTANI)
Paper Code: SEC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Course Objectives:

১. এই কাকতখনে ছাত্র ছাত্রীক অসমীয়া আখৰ জোঁটনি সম্পর্কে সচেতন কৰি তুলিব।
২. কাকতখনে ছাত্র-ছাত্রীক অসমীয়া ভাষা বৃত্তিগতভাৱে ব্যৱহাৰ কৰিবলৈ শুদ্ধ আখৰ জোঁটনিৰ জ্ঞান দিব।
৩. কাকতখনে কর্মক্ষেত্রত অসমীয়া শুদ্ধ লিখনৰ বাবে ছাত্র-ছাত্রীসকলক সাজু কৰিব।

প্রথম গোট:
স্বৰধ্বনি, স্বৰবর্ণমালা, বিশিষ্ট স্বৰধ্বনি, স্বৰধ্বনি আৰু আখৰৰ সম্পর্ক, স্বৰৰ গৌণচিহ্ন স্বৰধ্বনিগত বর্ণাশুদ্ধিৰ কাৰণ। ১০ + ১৫= ২৫

দ্বিতীয় গোট:
ব্যঞ্জনধ্বনি, ব্যঞ্জনবর্ণমালা, বিশিষ্ট ব্যঞ্জনধ্বনি, ব্যঞ্জনধ্বনি আৰু আখৰৰ সম্পর্ক, যুক্তাক্ষৰ, ব্যঞ্জনধ্বনিগত বর্ণাশুদ্ধিৰ কাৰণ। ১০ + ১৫= ২৫

তৃতীয় গোটঃ ভুল প্রয়োগ
বিভক্তি, প্রত্যয়, চন্দ্রবিন্দু, যতিচিহ্ন, তৎসম শব্দৰ বানান, থলুৱা শব্দৰ বানান, লিপ্যন্তৰ পদ্ধতি আৰু প্রয়োগ। ১০ + ১৫= ২৫

সহায়ক গ্রন্থ (নির্বাচিত)

অসমীয়া আখৰ জোঁটনি আৰু লিপ্যন্তৰ পদ্ধতি: গুৱাহাটী বিশ্ববিদ্যালয়
অসমীয়া আখৰ জোঁটনি সমীক্ষা: ড° শ্রীগোলোকচন্দ্র গোস্বামী
ব্যাকৰণতত্ত্ব আৰু তাত্ত্বিক: খগেশ সেন ডেকা
নিকা অসমীয়া ভাষা: মহেশ্বৰ নেওগ
অসমীয়া আখৰ জোঁটনিৰ কথাঃ শিৱনাথ বর্মন
অসমীয়া ভাষা-সাহিত্য চর্চাকাৰীসকলৰ হাতপুথিঃ ৰমেশ পাঠক
অসমীয়া ভাষা শিকাৰুৰ হাতপুথিঃ ড.বিন্দু ভূষণ বৰা

SKILL ENHANCEMENT COURSE (BENGALI)

Semester 1 Paper 2

Paper Name/Title: বাংলা ভাষার ব্যবহারিক দিশা ও সম্ভাবনা (প্রুফ সংশোধন, বাংলা পরিভাষা, সম্পাদনা, আন্তর্জালের বৃত্তিমূলক প্রয়োগ।)

Paper Code: SEC-01-B-02-03

Credits = 3 (Theory 3 Practical Nil)

(External Evaluation 45 + Internal Assessment 30): Total Marks 75

UNIT	TOPIC	NO. OF CLASSES	MARKS
1.	**প্রুফ সংশোধন** প্রুফ সংশোধন সম্পর্কে প্রাথমিক ধারণা, প্রয়োজনীয়তা, রীতি ও ব্যবহারিক প্রয়োগ	15	15
2.	**সম্পাদনা** পত্রিকা ও গ্রন্থ সম্পাদনার সাধারণ বৈশিষ্ট্য ও পরিচয়। গ্রন্থের বিভিন্ন অংশ--প্রচ্ছদ, আখ্যাপত্র, উৎসর্গ পত্র, সম্পাদকীয়, ভূমিকা, সুচিপত্র, পরিশিষ্ট, গ্রন্থপঞ্জি, লেখক পরিচিতি, নির্ঘন্ট	15	15
3.	**আন্তর্জালের বৃত্তিমূলক প্রয়োগ,** কনটেন্ট রাইটিং, ফ্রিলান্সিং, শিক্ষামূলক ভিডিও নির্মাণ, ব্লগ নির্মাণ,	15	15

SKILL ENHANCEMENT COURSE (BOTANY)
Semester 1 Paper 3
Paper Name/Title: Mushroom Cultivation
Paper Code: SEC-01-B-03-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

THEORY

Unit 1: Introduction to mushrooms
Mushrooms- taxonomic rank, habit habitat, types and structure.

Unit 2: Process of cultivation
Structure and construction of mushroom house; Spawn production- culture media preparation, isolation of pure culture, mother spawn, multiplication of spawn; Sterilization of substrates. Composting techniques, mushroom bed preparation; Spawning, spawn running, harvesting. Cultivation of oyster mushroom. Disease and pest management.

Unit 3: Health benefits of mushrooms
Nutrient profile and therapeutic aspects of mushrooms. Edible Mushrooms - Oyster mushroom (*Pleurotus ostreatus*), paddy straw mushroom (*Volvariella volvcea*), Button mushroom (*Agaricus bisporus*); Poisonous mushroom- False parasol or green-spored parasol (*Chlorophyllum molybdites*).

Unit 4: Post harvest technology
Preservation of mushrooms- freezing, drying, and packaging, quality assurance, shelf life, market opportunities. Value added products of mushrooms.

PRACTICAL

1. Sterilization and media preparation.
2. Cultivation of oyster mushroom using paddy straw/ lignocellulosic wastes.

Suggested Readings

1. Purkayastha RP, Chandra A (1985) Manual of Indian edible Mushrooms. Today and Tomorrows Printers and Publishers, New Delhi.
2. Pathak VN, Yadav N (1998) Mushroom Production and Processing Technology. Agrobios, Jodhpur.
3. Tripathi DP (2005) Mushroom Cultivation. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Pandey RK, Ghosh SK (1996) A Hand Book on Mushroom Cultivation. Emkey Publications.
5. Hait G (2023) Introductory Botany (Biofertilizer and Organic Farming, Herbal technology, Mushroom Culture Technology). Vol-1, Global Net Publication, New Delhi.
6. Pathak VN, Yadav N. Gaur M (2000) Mushroom Production and Processing Technology. Vedams Ebooks Ltd., New Delhi.

Learning objectives:

1. Understand the basics of mushroom by enabling students to identify edible and poisonous mushrooms.
2. Develop interest in mushroom cultivation.
3. Provide hands on training for the preparation of spawn and mushroom bed for mushroom cultivation.
4. Learn various post-harvest technology associated to mushroom cultivation.
5. Identify and manage Insect-Pests affecting mushrooms.
6. Help the students to learn a means of self-employment and income generation.

Learning outcomes:

On successful completion of the course, students will be able to:

1. Identify edible and poisonous mushrooms.
2. Gain the knowledge of cultivation of edible mushrooms and spawn production, and various post-harvest technology associated to mushroom cultivation.
3. Manage various discases and pests of mushrooms.
4. Learn the way of self-employment and income generation.

SKILL ENHANCEMENT COURSE (CHEMISTRY)
Semester 1 Paper 4
Paper Name/Title: Mathematics for Chemistry
Paper Code: SEC-01-B-04-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

Learning Objectives: Utilize calculus to examine thermodynamic properties and chemical reaction rates. Solve quantum chemistry problems using linear algebra. Model chemical systems such as reaction kinetics, by solving differential equations. Use statistical techniques to examine chemistry experiment data. Use calculations pertaining to chemistry to develop problem-solving capacity. Understanding the basics of chemical graph theory.

Course outcome:

- After successful completion a student should gain proficiency in calculus (differentiation, integration, multivariable calculus), linear algebra, differential equations, and basic probability/statistics, as these are commonly applied in chemistry.
- Students will be able to apply mathematical techniques to solve problems in physical chemistry analytical chemistry and computational chemistry.
- Students will develop critical thinking and problem-solving abilities, translating chemical phenomena into mathematical models and solving them systematically.
- Students will gain familiarity with software tools (e.g. Python, and Excel) for numerical computations and visualization relevant to chemical systems.
- The course will prepare students for advanced chemistry courses, such as quantum chemistry AI modeling etc, where mathematical rigor is essential.

Introduction to Mathematics in Chemistry Role of mathematics in chemistry in chemical kinetics, thermodynamics, quantum mechanics and symmetry. Review of mathematical principles, including functions, graphs, and logarithms.	2 Hours
Differentiation in Chemistry Concept of derivatives: rates of change, slopes, and tangents. Differentiation rules: power, product, quotient, and chain rules. Applications of rate laws in chemical kinetics (e.g., first-order reactions). Equilibrium constants and Gibbs free energy minimization. Higher-order derivatives and partial derivatives. Optimization: finding maxima and minima. Solve optimization problems in thermodynamics (Discussion Only).	5 Hours
Integration in Chemistry Concept of integrals: area under curves, anti-derivatives. Basic integration techniques: substitution and integration by parts. **Applications** in work done in gas expansion, heat capacity calculations. Compute work in isothermal processes. Definite integrals and numerical integration (trapezoidal rule, Simpson's rule). Multiple integrals for multivariable systems. Applications of integration in calculating entropy changes, partition functions(Discussion only).	Hours
Linear Algebra : Vectors and Matrices Vectors: addition, dot product, cross product. Matrices: operations, determinants, inverses. Various types of matrices. Idea of matrices in coordinate transformations. Practical examples of matrix operations for molecular geometry transformations (Discussion only). Eigenvalues and Eigenvectors Eigenvalues and eigenvectors: definitions and calculations. Diagonalization of matrices. **Simple discussion to make the student aware of using the above ideas in q**uantum mechanics (e.g., solving the	5 Hours

Schrödinger equation). **Activities**: Compute eigenvalues for simple functions.	
Differential Equations I: First-Order ODEs Ordinary differential equations (ODEs): definitions and types. Solving first-order ODEs: separation of variables, integrating factors. Second-order linear ODEs: homogeneous and non-homogeneous. Methods: characteristic equations, undetermined coefficients.	4 hours
Probability and Statistics : Descriptive Statistics Measures of central tendency and dispersion: mean, median, standard deviation. Probability distributions: normal, Poisson, binomial. Types of errors, causes of errors, Minimization of errors. Error analysis in experimental data. **Activities**: Analyze data statistically using MS excel and any other software. Hypothesis Testing Hypothesis testing: t-tests, F test, chi-square tests. Confidence intervals and p-values. Comparing experimental yields or reaction rates.	5 hours
Introduction to Graph Theory: What is graph theory? A mathematical framework for studying relationships (nodes and connections). Relevance to chemistry: Molecules as graphs (atoms = vertices, bonds = edges). Real-world examples: Molecular structures, chemical networks, drug design. **Vertices and Edges**: Representing objects (atoms) and relationships (bonds). **Undirected Graphs**: Symmetric relationships (e.g., covalent bonds).**Directed Graphs**: Asymmetric relationships (e.g., reaction pathways). **Weighted Graphs**: Edges with values (e.g., bond strength or distance). **Degree of a Vertex**: Number of connections (e.g., valence of an atom). **Simple Graphs vs. Multigraphs**: Single vs. multiple bonds between atoms. Example: Represent ethane (C_2H_6), ethene (C_2H_4) and acetylene (C_2H_2).	5 Hours

Laboratory Course

1. Plotting of concentration vs. time for chemical reactions using MS excel, Python etc.
2. Plotting absorbance to concentration using MS excel, Python etc.
3. Plotting of various mathematical functions using MS excel, Python etc.
4. Calculate reaction rates from concentration-time data using MS excel or Python.
5. **Plotting f**irst-order reaction kinetics using MS excel or Python.
6. **Plotting** radioactive decay using MS excel or Python.
7. **Plotting h**armonic oscillators in vibrational spectroscopy using MS excel or Python.
8. Calculate mean, median, SD, Coefficient of variance from chemical data sets using MS excel.
9. Perform t-tests, F test on chemical data sets using MS excel.

Reference Books:

- *Mathematics for Physical Chemistry* by Robert G. Mortimer.
- *Mathematical Methods for Scientists and Engineers* by Donald A. McQuarrie.

SKILL ENHANCEMENT COURSE (ECONOMICS)
Semester 1 Paper 5
Paper Name/Title: An introduction to Field Survey Technique
Paper Code: SEC-01-B-05-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

Course Objective:
The course is designed to give ideas about the statistical tools, process of data collection, field survey, case study and framing and construct a questionnaire/ schedule to study a specific research problem.

Learning outcome:
This course aims to develop the conceptual framework which will enable students to understand and expected to master different ways to collect data along with questionnaire under different circumstances and also expected to get an idea how to write a research report.

Unit 1:
Overview of statistics : population and sample, what is statistics ? why study Statistics ? variables and types of variables, different measurement scales. **(6)**

Unit 2:
What is a Survey, Need and importance of field work in socio-economic studies, prerequisites of success of survey. **(6)**

Unit 3:
Data collection- primary and secondary data, Census versus Sample Survey, Distinction between population and sample, population parameters and sample statistics, principal steps in a sample survey, Methods of sampling- random, stratified, multi-stage and systematic random sampling. **(6)**

Unit 4:
Tools and Techniques of data collection, formation of a good questionnaire and its ethical issues. **(6)**

Unit 5:
types of survey research; interviews, forms group discussion, panel survey, telephone survey, mail-in survey and online Survey. **(8)**

Unit 6:
Students will choose any topic and prepare a questionnaire/ schedule. The student will also visit nearby village and collect the relevant data and write a report. **(15)**

Readings:
1. Padmalochan Hazarika, statistical Methods for Economics, Ashok book Stall.
2. Fink, A, How to ask Survey Questions, Sage Publications Inc.

SKILL ENHANCEMENT COURSE (EDUCATION)
Semester 1 Paper 6
Paper Name/Title: Life Skill Education
Paper Code: SEC-01-B-06-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Course Objectives

·To provide with the knowledge of necessary life skills for the application in everyday life

·To enhance the quality of addressing issues relevant to life situations

·To enable the students to establish productive interpersonal relationships with others

·To equip students for handling specific issues

Unit No.	CONTENTS	NO. OF CLASSES	MARKS
1	INTRODUCTION TO LIFE SKILLS: 1.1 : Introduction to life skills- Definition of Life Skills, Components of life skills, Need for Life skill training 1.2 : The Four Pillars of Education – Learning to Know, Learning to Do, Learning to Be, Learning to Live Together	6	11
2	CORE LIFE SKILLS: 2.1 The Ten core Life Skills as laid down by WHO (Problem solving skills, Decision making skills, Creative thinking skills, Critical thinking skills, Communication skills, Interpersonal skills, Empathy, Self-Awareness, Coping with emotion, Coping with stress)	6	11
3	UNDERSTANDING LIFE SKILLS FOR ADOLESCENT STUDENTS: 3.1 Life Skills for Adolescent Students: Concept, Need & Importance	6	11

	3.2 Teaching Life Skills to Adolescent Students		
4	METHODS OF TEACHING LIFE SKILLS: 4.1 Project, Demonstration, observation, experiment, and integrated method 4.2 Role of teachers and community members in life skill education 4.3 Practical works	8	12

REFERENCES:

- Hariharan S Soft Skills, MJP Publication. Chennai
- James Larry, Life Skills. Embassy Books Distributors, Maharashtra
- Pandey Shivpujan Life Skills for Adolescents. Global Research Publication, New Delhi
- Gupta R. Skills & Difficulties in Modern Education. Mahaxeer & Sons, New Delhi
- Rao, Ravikanth, k. and Dinakar, P., Life Skills Education, Neel Kamal Publications, New Delhi
- Verma, S. Development of life-skills and professional practice, Vikas Publishing House Pvt. Ltd.

SKILL ENHANCEMENT COURSE (ENGLISH)
Semester 1 Paper 7
Paper Name/Title: Basics of Academic Writing
Paper Code: SEC-01-B-07-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75
Contact + Tutorial Classes: 45

COURSE OBJECTIVES: This course will introduce the students to -

- The fundamentals of academic writing
- The skills of writing grammatically correct sentences and coherent paragraphs
- The skills of organising ideas and expressing them in a structured way
- The processes involved in writing such as planning, drafting, revising and editing
- Imbibe brevity in their writing
- Write clear, coherent, cohesive and well-argued academic essays

COURSE OUTCOMES: At the end of the course, students will be able to-

- Understand the basics of academic writing
- Construct lucid and well-structured academic paragraphs and essays
- Apply appropriate grammar, punctuation and academic tone
- Learn the skills of revising and editing
- Learn the skill of writing time-bound and concise subjective answers in the examination

UNIT-1 (Credit-1)

- Introduction to academic writing
- Basics of grammar (parts of speech, subject-verb agreement and sentence structures)
- Types of Paragraphs (narrative, descriptive, expository)
- Paragraph writing (topic and concluding sentences, linking words and phrases)

UNIT-2 (Credit-1)

- Structure of an essay: introduction, body, conclusion
- Writing an effective introduction and statement of the thesis
- Developing the body of the paragraphs (argumentation, inferring, exemplifying)
- Writing a conclusion

UNIT-3 (Credit-1)

- Academic style and tone of writing
- Editing and proofreading techniques
- Drafting, revising, editing, preparing the final draft and reflecting
- Referencing (MLA and APA)
- Publication ethics and Committee on Publication Ethics (COPE)

MODE OF ASSESSMENT: CIE + end semester exam

- **Continuous Internal Evaluation (CIE) = 30 marks**

CIE will be carried out with Activities, Assignments and Sessional examinations

Activities –
a) Icebreaker
b) Grammar exercise

c) Paragraph writing workshop
d) Vocabulary quiz

Assignments

a) Writing academic essays based on a given text
b) Practicing linking words and phrases
c) Revising, editing and peer reviewing exercises

End Semester Exam = 45 marks

Recommended Readings:

- M. Swales, John and Christine B. Feak, *Academic Writing for Graduate Students*, University of Michigan Press, USA, 2024.
- Murphy, Paul. *Academic Writing: Mastering Citation and Referencing*, Prosperity Education, UK, 2023.
- Supplementary materials provided by instructor

SKILL ENHANCEMENT COURSE (GEOGRAPHY)
Semester 1 Paper 8
Paper Name/Title: Geography of Tourism
Paper Code: SEC-01-B-08-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

Course Objectives:
The main objective of this skill-based paper is:

1. To introduce the students with the fundamental knowledge of travel and tourism geography.
2. To understand the importance of geography in travel and tourism.
3. To develop preparedness among the students as employees or self-employed youths in the Society.

Learning Objectives:
At the end of this skill-based paper the learners will be able to:

1. Understand the concept and different forms of Tourism Geography.
2. Analyse the development of Tourism in India and the world.
3. Enable students to identify the role of geography along with the economic, social,and environmental importance of tourism.
4. Enable students to provide skills in terms of tourism types, environmental preservation and conservation.

Theory

1. Definition, Nature and Scope of Tourism Geography, Significance and its classification of Tourism, Factors influencing Tourism (historical,natural,socio-cultural and economic); motivating factors for tourism, elements of tourism as an industry.
2. Objectives and role of ITDC, TFCI, IRCTC. An overview of National and International Organizations and Associations:IATO, TAAI, WTO, IATA.
3. Recent Trends in Tourism- Internal,Regional,Domestic, Sustainable. Impacts of Tourism on Economy and Environment, Impacts of tourism on Society and Culture. Eco-tourism in third world countries-problems, prospects for sustainability
4. Introduction to National Tourism Policy- concept, significance, objectives, five year plans related to Tourism, National Tourism Policy 2002. Assam Tourism Policy 2022.
5. Tourism development in North-east India with special reference to Assam. Globalization and Tourism.

Practical

1. Trend of tourist arrivals in Assam / North-east since 1980 by line graph. (2 Assignment)
2. Prepare a Map on India's UNESCO World Heritage Sites (1 Assignment)
3. Prepare a 7-day itinerary to any Indian destination (with costing and travel mode) (1 Assignment)
4. Prepare a chart on major countries of Traffic Conference Areas along with their capitals, its IATA three letter codes and currencies. (1 Assignment)
5. Viva-Voce based on laboratory Notebook.

N.B.: ***Students are not allowed to enter examination hall without practical Note-Book.***

Book list:

1. Chandra, R.H. Hill Tourism: Planning and Development, Kanishka pub, New Delhi, 1998.

2. Hunter e and Green H: Tourism and the Environment: A Sustainable Relationship, Routledge, London, 1995.
3. Kaur J: Himalayan Pilgrimages and New Tourism, Himalayan Books, New Delhi, 1993.
4. Voase, R: Tourism: The Human Perspective, Holder and Stoughton, london, 1995.
5. Biju, M.R.: Sustainable Dimensions of Tourism Management, Mittsl Publication, N.D.
6. Bhatia, A.k.: Tourism: Development and Practices, stering pub. New Delhi, 1996.
7. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
8. Lea, J., Tourism and Development in the Third World, Routledge, London1988.
9. Nigam, d., Tourism, Environment and Development of Garhwal Himalayas, Mittal Publications,2002.
10. Robinson, H., A Geography of Tourism, MacDonald and Evans, London, 1996.
11. Sharma, J.k. (Ed.), Tourism Planning and Development- A New Perspective, Kansihka Publisher, New Delhi,2000.
12. Sinha, P.C. (Ed.)., Tourism Impact Assessment, Anmol Publishers, New Delhi, 1988.
13. Siddiqui, S., Eco- Friendly Tourism in UP. Himalayas, B.R. Publishers, New Delhi,2000.
14. Singh, I., Manipur, A Tourist Paradise, B.R. Publishers, New Delhi, 2005.
15. Dogra, Ankur (2020): Geography of Tourism, Akinik Publications, New Delhi.
16. Singh Jagbir (2014) Eco- Tourism published by I.K. International Pvt. Ltd S-25, Green Park Extention, Uphaar Cinema Market, New Delhi, India
17. Page S.J. (2011) Tourism Management: An Introduction, Butterworth- Heinemann- USA
18. Dixit, N.K. (2010): Tourism Geography, Vista International, New Delhi.
19. Roday, S., Biwal, A., and Joshi, V. (2009): Tourism Operations and Management", Oxford University Press, New Delhi
20. Kama, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
21. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and PilgrimageFestivalsManagement :An International Perspective
22. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects Kanishka, New Delhi
23. Hall, M. and Stephen, P. (2006) Geography of Tourism and Reaction- Environment, Place and Space, Routledge, London
24. Milton, D: Geography of World Tourism, prentice hall, N.Y. 1993.
25. Williams Stephen: tourism geography, Routledge, london, 1998.

SKILL ENHANCEMENT COURSE (HINDI)
Semester 1 Paper 9
Paper Name/Title: सृजनात्मक साहित्य लेखन
Paper Code: SEC-01-B-09-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

विषय : हिंदी (SKILL)
छमाही : प्रथम
कोर्स का नाम : सृजनात्मक साहित्य लेखन
कुल अंक : 75 बाह्य परीक्षण : 45 आंतरिक परीक्षण : 30

इकाई	क्रेडिट	पाठ्य – विषय	कक्षा संख्या	अंक (बाह्य परीक्षण + आंतरिक परीक्षण)
1	**1**	**सृजनात्मक लेखन :** अर्थ, स्वरूप, परिभाषा, महत्त्व; सृजनात्मक साहित्य लेखन की प्रक्रिया, रचना का उद्देश्य, विषय-वस्तु का निर्धारण	**15**	**25 (20+5)**
2	**1**	**सृजनात्मक साहित्य की विविध विधाओं का लेखन :** कविता, कहानी, उपन्यास, नाटक	**15**	**25 (20+5)**
3	**1**	**जनसंचार माध्यमों के लिए लेखन :** फीचर लेखन, यात्रा वृत्तांत, पुस्तक समीक्षा, सामयिक विषयों पर लेखन, रेडियो और दूरदर्शन के लिए नाटक एवं पटकथा लेखन	**15**	**25 (20+5)**

द्रष्टव्य: आंतरिक परीक्षण के अंतर्गत **10 अंक के लिए** सृजनात्मक लेखन की किन्ही दो विधाओं पर नमूने प्रस्तुतिकरण की व्यवस्था रहेगी। विभागीय अध्यापकगण व्यावहारिक परीक्षण का मूल्यांकन-कार्य सम्पन्न करेंगे। शेष **20 अंक** के लिए सत्रीय परीक्षा, कक्षा परीक्षा, समूह में चर्चा, आदि की व्यवस्था रहेगी।

पाठ्यपुस्तक:

1. रचनात्मक लेखन- रमेश गौतम (सं), वाणी प्रकाशन ग्रुप, नई दिल्ली

संदर्भ ग्रंथ:

1. सृजनात्मक लेखन- राजेंद्र मिश्र, तक्षशिला प्रकाशन, नई दिल्ली
2. हिंदी साहित्य ज्ञानकोश- भाग- 2, शंभुनाथ (सं), भारतीय भाषा परिषद, कोलकाता
3. हिंदी साहित्य ज्ञानकोश - भाग- 4, शंभुनाथ (सं), भारतीय भाषा परिषद, कोलकाता
4. आधुनिक हिंदी साहित्य का इतिहास- डॉ. बच्चनसिंह, लोकभारती प्रकाशन, इलाहाबाद
5. अभिव्यक्ति और माध्यम- असम राष्ट्रभाषा प्रचार समिति प्रकाशन (सं), गुवाहाटी

❖ **पूर्व योग्यता:** हिंदी सहित **10 वीं** कक्षा उत्तीर्ण

❖ **स्नातक गुण :**

कोर्स का लक्ष्य : इस पाठ्यक्रम का मूल लक्ष्य विद्यार्थियों में सृजनात्मक लेखन के प्रति समझ और अभिरुचि

विकसित करना है। इसका उद्देश्य सृजनात्मक लेखन की प्रक्रिया, विविध साहित्यिक विधाओं तथा प्रिंट और इलेक्ट्रॉनिक मीडिया के लिए लेखन की कलाओं से विद्यार्थियों को परिचित कराकर उनकी अभिव्यक्तिगत, भाषिक और रचनात्मक क्षमताओं को सशक्त करना है।

शिक्षण उपलब्धि : इस पाठ्यक्रम के माध्यम से विद्यार्थी सृजनात्मक लेखन की प्रक्रिया, उद्देश्य, विषयवस्तु और विभिन्न साहित्यिक रूपों की गहन समझ प्राप्त करेंगे। वे कविता, कहानी, नाटक, अनुवाद सहित मीडिया लेखन की विधाओं जैसे फीचर, समीक्षा, साक्षात्कार, पटकथा आदि में लेखन कौशल विकसित कर सकेंगे। यह पाठ्यक्रम विद्यार्थियों को अपनी कल्पना और रचनात्मकता का उपयोग करके आकर्षक और प्रभावी लेखन करने में सहायक होगा।

आवश्यक कक्षाओं की संख्या : 45 प्रत्यक्ष कक्षाएँ : 45 अप्रत्यक्ष कक्षाएँ : 0

SKILL ENHANCEMENT COURSE (HISTORY)
Semester 1 Paper 10
Paper Name/Title: Cultural Heritage of Assam
Paper Code: SEC-01-B-10-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 30 + Internal Assessment 20 + Project Work 25): Total Marks 75

Course outcome: The completion of the course will offer students a multitude of benefits – a stronger sense of identity, connect them to their roots, while enabling them to appreciate their own cultural background and that of others. The students would also become aware of the different organisations that work for conservation and preservation of heritage.

Unit I: Concepts and Organisations (Lectures:15; Marks: 25)

a) Culture: meaning and characteristics.
b) Heritage: meaning; Heritage as a cultural construct; Types of heritage- tangible and Intangible with examples.
c) Stake-holders in Heritage Management:
i) Government Agencies - Archaeological Survey of India (ASI); Directorate of Archaeology & Museum, Assam; National Research Laboratory for Conservation of Cultural Property (NRLC, Lucknow).
ii) Non-Government Agencies - Indian National Trust for Art and Cultural Heritage (INTACH); Tata Trusts for Arts and Culture; SPIC MACAY.
iii) International Agencies – UNESCO.

Unit II: Awareness, Conservation and Preservation (lectures: 15; Marks: 25)

a) Heritage awareness and role of Digital media
b) Conservation and Preservation of historical heritage and natural heritage.
c) Places of Cultural and Natural Heritage:
(i) Kamakhya, Hajo, Satras and Naamghars, Sualkuchi, Sarthebari etc
(ii) Ambubachi Mela, Me-Dam Me-Phi; Jonbeel Mela, etc.
(iii) Bhaona, Bihu, Doul Utsav, etc
(iv)National Parks and Wild life Sanctuaries: Kaziranga and Manas; River Island Majuli; Wetlands – Deepor Beel etc.

Unit III: Project Work (Class Hours: 15; Marks: 25)

a) **Topic for the Project**: an existing heritage site, practice and tradition. It could also be a site or practice which has heritage potential. (The topic of the project should preferably be local).
b) The Project Report is to justify as to why the selected topic is being considered as heritage and what are its future prospects.
c) The word limit for the project-work should not be less than 1500 words.

Readings:

1. Birinchi Kumar Barua, *A Cultural History of Assam,* lawyer's Book Stall, Guwahati, 1969.
2. Maheswar Neog, *Cultural Heritage of Assam,* Omsons Publishers, 2008.
3. B K Barua, H B Sreenivasa Murthy, *Temples and Legends of Assam*, Bharatiya Vidya Bhawan.
4. Praphulla Dutta Goswami, *Folk Literature of Assam, An Introductory Survey*, DHAS, Guwahati. 1965.
5. Jogesh Das, *Folklore of Assam*, National Book Trust, India, 2023.
6. Dilip Kumar Kushwaha, *Basic of Heritage Conservation*, Research India Press, 2020

SKILL ENHANCEMENT COURSE (MATHEMATICS)
Semester 1 Paper 11
Paper Name/Title: LaTeX
Paper Code: SEC-01-B-11-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

Course Objectives: To introduce the students with a software that is being widely used for typesetting specially in Mathematics. To make students realize the importance of this software for preparing research articles, papers, project reports and books and thereby help them to be comfortable with the software

Course Learning Outcomes: This course will enable the students to:

- Learn how to prepare mathematical documents, which include mathematical expressions, figures, and tables.
- Learn how to prepare beamer presentations, especially designed for mathematical presentations.

UNIT 1: Installation of TexMaker and MikTeX, Class and packages, Latex commands, Preamble, Mathematical typsetting: Math mode, alphabets, symbols, functions, structures, tables, Advanced mathematical typesetting: Delimiters, Environments, Arrays, Graphics using picture environment, PSTricks package and pspicture environment, pst-plot package and drawing graphs of mathematical functions.

Textbook 1: [**Chapter 9, Chapter 10:** Sections 10.1-10.3**]**
(No. of classes: 25, Marks: 25)

UNIT 2: Beamer presentations, Beamer themes.
Textbook 1: [**Chapter 11]**
(No. of classes: 5, Marks: 5)

Practical: At least five practical should be done by each student. The teacher will assign practical from the exercises.
Textbook 1: [**Chapter 9-11]**
(No. of classes: 30, Marks: 25)

Text Books:

1. Erickson, M.J. & Bindner, D. *A Student's Guide to the Study, Practice and Tools of Modern Mathematics*, CRC Press, Boca Raton, FL, 2011.

SKILL ENHANCEMENT COURSE (PHILOSOPHY)
Semester 1 Paper 12
Paper Name/Title: Philosophical Counselling
Paper Code: SEC-01-B-12-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Unit No.	Unit Content	No. of Classes	Marks
I	-What is counselling and what Counselling is not; Attributives of a Counsellor -Philosophical Counselling: Its meaning and scope and distinction from Psychological Counselling	15	25
II	-Critical Thinking Approach: Logic- Based Therapy (LBT)—Philosophical Principles of LBT, LBT fallacies, antidotes	15	25
III	- Existential Approach: Existentialism-Based Therapy – Authentic and Inauthentic Life	15	25
Total Classes		45	

- **Reading list:**

Cohen, Elliot D.: Logic-Based Therapy and Everyday Emotions: A Case Based Approach, Lexington Books, 2016.

Cohen, Elliot D. Philosophical Principles of Logic-Based Therapy

Lacovou, S. & Karen Weisel-Dixon.: Existential Therapy: 100 Key Points and Techniques, Routledge, 2015.

Lahav, Ran.: Stepping Out of Plato's Cave: Philosophical Counselling, Philosophical Practice and Self-Transformation, Loyev Books, 2nd edition,2016.

Lahav, Ran. What is Philosophical in Philosophical Counselling? In Journal of Applied Philosophy, vol. 13, No. 3, pp. 259-278, 1996.

Lebon, Tim.: Wise Therapy, London: Continuum, 2001.

Lebon, Tim. Philosophical Counselling: An Introduction (First published in Thinking Through Dialogue: Essays on Philosophy in Practice, Curnow. T (ed) 1999

Raabe, Peter B.: Philosophical Counselling—Theory and Practice, Praeger Publishers Inc., 2000.

Sartre, J. P.: Being and Nothingness, Simon and Schuster, 1993.

Sartre, J. P.: Existentialism is a Humanism, Yale University Press, 2007.

Sulavikova B. Key Concepts in Philosophical Counselling. Human Affairs, 24, 574-583, 2014

Sulavikova, B. Philosophical Counselling Based on Dialogical Critical Thinking, Human Affairs, 23(4), 680-688, 2013

Website links :

https://www.curioussoulphilosophy.com/what-is-philosophical-counseling.html

https://www.infanciacontemporanea.com/wp-content/uploads/2018/06/v9n3eng.pdf

https://merlinccc.org/wp-content/uploads/2016/12/Philosophical-Counseling_LBT_Marisa-Diaz Waian_Grief-Workshop-2016-Handout.pdf

https://www.ncbi.nlm.nih.gov/books/NBK64939/https://npcassoc.org/

https://peterraabe.ca/what.html https://philopractice.org/web/history-ran-laha

- **Graduate Attributes**

i.Course Objectives-

The course objectives at developing the skills of:

-Philosophical understanding or wisdom (philos-sophia=love of wisdom) as an end in itself.

- Addressing dilemmas (e.g. decision making dilemmas), predicaments and life-issues of persons through philosophical examination.

-Exposing and examining underlying assumptions and logical implications.

-Exploring conflict and inconsistencies.

ii. Learning Outcome:

On completion of the course students are expected to be able to:

- Understand the scope of Philosophical vis-à-vis Psychological Counselling
- Inculcate self-confidence in one's own abilities to reason
- Understand the opinions of other people
- Develop flexibility in considering alternatives and opinions

-Overcome personal problems by adopting different philosophical approaches to philosophical counselling

- Develop fair-mindedness in appraising reasoning

Particulars of Course Designer (Name, Institution, email id): Mr. Ganesh Dao, B. Borooah College (Autonomous), ganeshdao1993@gmail.com

SKILL ENHANCEMENT COURSE (PHYSICS)
Semester 1 Paper 13
Paper Name/Title: Basic Skills on Electronic Equipment
Paper Code: SEC-01-B-13-03
Credits = 3 (Theory 1 Practical 2)
(External Evaluation 15 + Internal Assessment 30 + Practical 30): Total Marks 75

i. Course Objectives:

This course aims at making the students introduced to the working of electronic equipment used in daily life and to repair and maintenance of these equipment.

ii. Course Learning Outcomes:

At the end of the course, the students shall be able to identify the fault, repair & do maintenance of daily use electronic equipment.

iii. Course Outline

Theory (Total no. of classes: 15) **Credit: 01**

Unit-1: Basic Electronic Components **Lecture: 02**
Introduction to Resistor, Capacitor, Inductor, Diode, Transistor, Transformer, battery/ cell (Brief idea, use and application only)

Unit-2: Basic Electronic Circuits **Lecture: 03**
Ohm's Law, Kirchhoff's current & voltage law, series and parallel circuit's connection, rectifier circuit using diode.

Unit-3: Use of Measuring Instruments **Lecture: 03**
Use of vernier slide calliper, screw gauge, spherometer, Sextant, Digital Multi-Meter (DMM), Testers, different type of fuse, electronic balance, bread-board.

Unit-4: Soldering Technique **Lecture: 03**
Introduction to Soldering and De-soldering Techniques: Soldering tools, Soldering iron, Solder joint, Dry solder joint, Cold solder joint, Good and bad solder joints

Unit-5: Electrical switch board, Power Supply and PCB **Lecture: 04**
Circuit design for electrical switch board, Circuit design and principle of regulated power supply (AC to DC). Fabrication of PCB (Printed Circuit Board): Types of PCBs- Steps involved in development of PCB using $FeCl_3$ solution.

Laboratory **Credit: 02**

Laboratory (Total no. of classes: 30)

1. Identification of electronic components (Active or Passive) (a) Resistor (b) Capacitor (c) Inductor (d) Diode (c) LED (d) Transistor (e) IC
2. Use of Multimeter to measure the followings: (a) Alternating current/Voltage (b) Direct Current/Voltage (c) Resistance (d) capacitance
3. Use of Multimeter to check the continuity of the following: (a) Diode (b) Transistor (c) LED (d) Cable /wire
4. Use of vernier slide calliper, screw gauge, spherometer to measure the following physical quantity of given specimen: (a) Length (b) radius (inner/outer) (c) volume (d) thickness

(e) depth

5. Soldering and de-soldering of given circuit board
6. Circuit connection of household switch board containing both sockets, plug and switch
7. To convert AC to DC using (a) Half-wave rectifier (b) Full-wave rectifier (c) Bridge rectifier
8. Fabrication of printed circuit board (PCB) using $FeCl_3$ solution.
9. To determine the height of a building using sextant.

Reading list:

10. Grob's Basic Electronics, Mitchel Schultz, McGraw Hill (2024)
11. A textbook of Applied Electronics, R.S. Sedha–S. Chand (2022)
12. Basic Electronics, B.L Theraja (S. Chand)

SKILL ENHANCEMENT COURSE (POLITICAL SCIENCE)
Semester 1 Paper 14
Paper Name/Title: Conflict and Peace Studies
Paper Code: SEC-01-B-14-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Unit I: Conflict: Conceptual Understanding

- Conflict: Meaning and Types
- Conflict Resolution
- Peace Building

Unit II: Conflict Analysis and Management

- Techniques and Methods of Conflict Management
- Gandhian Method
- Structural Conditions
- Management Strategies

Unit III: Approaches to the Study of peace

- Political Economy Approach
- Feminist Approach
- Environmental Approach

Reading Lists:

Varshney, A. (2002). *Ethnic Conflict and Civic Life: Hindus and Muslims in India*, New Haven: Yale University Press.
Ballentine, K. and Sherman, J. (2003). *The Political Economy of Armed Conflict: Beyond Greed and Grievance*, Boulder, Co.: Lynne Rienner Publishers.
Burton, J., et al. (1993). *Conflict: Practices in Management, Settlement, and Resolution*, St. Martin's Press.
Cordell, K. and Wolff, S. (2009). *Ethnic Conflict: Causes, Consequences, and Responses*, Cambridge; Malden, MA: Polity.
Galtung, J. (1969). "Violence, Peace, and Peace Research," *Journal of Peace Research*, 6(3), pp. 167-191.
Galtung, J. (1996). *Peace by Peaceful Means: Peace and Conflict, Development and Civilization*, SAGE.
Lederach, J.P. (1995). *Preparing for Peace: Conflict Transformation Across Cultures*, Syracuse University Press.
Ramsbotham, O., Woodhouse, T. and Miall, H. (2011). "Understanding Contemporary Conflict" in *Contemporary Conflict Resolution* (Third Edition), Cambridge: Polity Press, pp. 94-122.
Dennis J.D. Sandole (1996). *Conflict Resolution: Theory and Practices*, Hugo Van der Merwe.
Wallensteen, P. (2007). *Understanding Conflict Resolution*, London: SAGE Publications.
Zartman, W. (1995). "Dynamics and Constraints in Negotiations In Internal Conflicts" in *Elusive Peace: Negotiating an End to Civil Wars*, Washington: The Brookings Institute, pp. 3-29.
Mitchell, C. (2002). "Beyond Resolution: What Does Conflict Transformation Actually Transform?" in *Peace and Conflict Studies*, 9:1, May, pp.1-23.
Schirch, L. (2004). *The Little Book of Strategic Peacebuilding*, London: Good Books.
Banks, M. and Mitchell, C. (Eds). (1990). *A Handbook on the Analytical Problem-Solving Approach*, Institute for Conflict Analysis and Resolution, George Mason University.
Bruce Bueno de Mesquita (1980). "Theories of International Conflict: An Analysis and an Appraisal,"

in *Handbook of Political Conflict: Theory and Research*, Ted R Gurr ed., New York: The Free Press.
March, C., et al. (1999). *A Guide to Gender Analysis Framework*, London: Oxfam.
Barash, D.P. and Webel (2009). *Peace and Conflict Studies*, 2nd edition, Sage.
Galtung, J., et al. (2002). *Searching for Peace: The Road to Transcend*, Pluto Press.
Mitchell, G. (2001). *Making Peace*, University of California Press.
Fisher, R. & Ury, W. (1991). *Getting to Yes: Negotiating Agreement without Giving In*, New York: Penguin Books.
Manchanda, R. (2001). *Women, War and Peace in South Asia: Beyond Victimhood to Agency*, New Delhi: Sage Publishers.
Nussbaum, M.C. (2000). *Women and Human Development: The Capabilities Approach*, Cambridge: Cambridge University Press.
Peteet, J.M. (1991). *Gender in Crisis: Women and the Palestinian Resistance Movement*, Columbia University Press: New York.
Philipose, P. and Bishnoi, A. (eds.) (2013). *Across the Crossfire: Women and Conflict in India*, Women Unlimited: New Delhi.
Rubenstein, R. (2003). "Sources" in *Conflict: From Analysis to Intervention*, S. Cheldelin, D. Druckman, and L. Fast (eds.), London: Continuum, pp.55-67.
P. Le Billon (2009). "Economic and Resource Causes of Conflicts" in *The Sage Hand Book of Conflict Resolution*, J. Bercovitch, V. Kremenyuk, and I. Zartman (eds.), London: Sage Publications, pp. 210-224.
S. Ayse Kadayifci-Orellana (2009). "Ethno-Religious Conflicts: Exploring the Role of Religion in Conflict Resolution" in *The Sage Hand Book of Conflict Resolution*, J. Bercovitch, V. Kremenyuk, and I. Zartman (eds.), London: Sage Publications, pp. 264-284.
Bearing Witness (2002). "A Report on The Impact of Conflict on Women in Nagaland and Assam," Centre for North East and Policy Research and Heinrich Boll Foundation, New Delhi.
Charles Henry, A. (1962). "The Secretary-General of the United Nations" in *International and Comparative Law Quarterly*.
House, D.W. (1973). *International Peace Keeping at the Crossroads*, USA: John Hopkins University.
Fisher, R. & Ury, W. (1991). *Getting to Yes: Negotiating Agreement without Giving In*, New York: Penguin Books.
Saunders, H. (1999). *A Public Peace Process: Sustained Dialogue to Transform Racial and Ethnic Conflicts*, Palgrave Macmillan: New York, pp. 1-30.
Behera, N. "Forging New Solidarities: Non-official Dialogues" in *Searching for Peace in Central and South Asia*, M. Mekenkamp, P. Tongeren and H. van De Veen (eds.), London: Lynne Rienner Publishers, pp. 210-236.
Bercovitch, J., Kremenyuk, V. and Zartman, I. (eds.) (2009). *The Sage Hand Book of Conflict Resolution*, London: Sage Publications.
Wagner, R. and Winter, D. (eds.) (2010). *Debriefing Mediators to Learn Their Experiences*, Washington D.C: United States Institute of Peace.
Mason, S. and Siegfried, M. (2010). *Managing A Mediation Process*, Washington D.C: United States Institute of Peace.
Zartman, I. and A. De Soto. (2010). *Timing Mediation Initiatives*, Washington D.C: United States Institute of Peace.
Smith, A. and Smock, D. (2010). *Conducting Track II*, Washington D.C: United States Institute of Peace.
Davies, J. and Kaufman, E. (eds.) (2003). *Second Track/Citizens' Diplomacy: Concepts and Techniques for Conflict Transformation*, Rowman & Littlefield: Maryland.
Bercovitch, J., Kremenyuk, V. and Zartman, I. (eds.) (2009). *The Sage Hand Book of Conflict Resolution*, London: Sage Publications.
Steger, M. (2001). "Peace building and Non-Violence: Gandhi's Perspective on Power" in *Peace, Conflict, and Violence: Peace Psychology for the 21st Century*, D. Christie, R. Wagner, and D. Winter (eds.), Englewood Cliffs, New Jersey: Prentice-Hall.
Banks, M. and Mitchell, C. (Eds), 1990. *A Handbook on the Analytical Problem-Solving Approach*,

Institute for Conflict Analysis and Resolution, George Mason University.
Barash, D.P. (2000). *Approaches to Peace: A Reader in Peace Studies*, Oxford University Press: New York.
Bilgrami, A. (2003). "Gandhi, The Philosopher" in *Economic and Political Weekly*, Vol 38, No 39, Spl Issue, pp. 4159-4165.
Bruce Bueno de Mesquita. (1980). "Theories of International Conflict: An Analysis and an Appraisal" in *Handbook of Political Conflict: Theory and Research*, Ted R Gurr ed., New York: The Free Press.
Derriennic, J-Pierre. (1972). "Theory and Ideologies of Violence" in *Journal of Peace Research*, 9, pp. 361-374.
Gandhi, M.K. (1947). *India of My Dreams*, Navjivan Publishers: Ahmedabad.
Gulrez, M. (2004). *Conflict Transformation in West Asia*, New Delhi, Uppal Publishing House.
Burgess, H. and Burgess, G. (2010). *Conducting Track II*, Washington D.C: United States Institute of Peace.
Jana, J. (2002). "Gandhi and Ram Rajya" in *Economic and Political Weekly*, Vol 37, No 18.
Joseph, S. (1971). "Gandhi's Absolutes" in *Economic and Political Weekly*, Vol.6, No 1.
Smith, A. and Smock, D. (2010). *Managing A Mediation Process*, Washington D.C: United States Institute of Peace.
Davies, J. and Kaufman, E. (eds.) (2003). *Second Track/Citizens' Diplomacy: Concepts and Techniques for Conflict Transformation*, Rowman & Littlefield: Maryland.
Steger, M. (2001). "Peace building and Non-Violence: Gandhi's Perspective on Power." In D. Christie, R. Wagner, and D. Winter (Eds.), *Peace, Conflict, and Violence: Peace Psychology for the 21st Century*, Englewood Cliffs, New Jersey: Prentice-Hall.

SKILL ENHANCEMENT COURSE (SANSKRIT)
Semester 1 Paper 15
Paper Name/Title: Functional Sanskrit
Paper Code: SEC-01-B-15-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

COURSE OBJECTIVE:

The aim of this course is to teach Sanskrit in a simple manner. It also intends to teach the students the skill of proper Sanskrit pronunciation through reading and recitation. This course aims to encourage the students to write different topics in simple Sanskrit.

UNIT No	UNIT CONTENT	CREDIT	No. of Classes	MARKS
I	**Specialties of Sanskrit Alphabets:** *Svarvarṇa, Vyanjanavarṇa*, Places of Pronunciation, *Prayatna*	1	10	25
II	**Creative Writing in Sanskrit:** *Citravarnana* and *Anucchedalekhanam* in Sanskrit	1	10	25
III	**Story writing and Application Writing in simple Sanskrit:** Story Writing and Application writing through fill in the blanks	0.5	10	15
IV	**Reading Skill :** Recitation of Modern Sanskrit poems	0.5	10	10

COURSE OUTCOME:

This course will help the students to improve proficiency in the Sanskrit language. They will be able to understand the language in an easier way. This will also help the students to build confidence in reading and writing Sanskrit language.

SUGGESTED BOOKS:

1. *Higher Sanskrit Grammar*, M R Kale, MLBD, Delhi
2. *Samagra Vyakara Kaumudi*, Ishwarchandra Vidyasagara
3. *Sanskrit Vyakaran Surabhi*, Rajendra Nath Sharma, M L Publisher, Rajgarh, Guwahati.
4. *Teach Yourself Sanskrit*, Edited by Y Kutumbasastri, Rastriya Sanskrit Sansthan, New Delhi.
5. *Asamāvāṁmaňjarī,* Dipak Kumar Sarma

SKILL ENHANCEMENT COURSE (STATISTICS)
Semester 1 Paper 16
Paper Name/Title: Data Collection and Analysis Using MS Excel
Paper Code: SEC-01-B-16-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 30 + Internal Assessment 20 + Project Work 25): Total Marks 75

Course Objective

The main objectives of this course are:

1. To introduce students to the fundamental concepts and methods of data collection.
2. To provide practical exposure through field work for primary data collection
3. To equip students with the skills to enter and format data in MS Excel.
4. To develop students' ability to organize, visually represent and summarize data using basic descriptive statistics in MS Excel.

Course Outcomes (COs):

By the end of this course, students will be able to

1. Collect data by preparing appropriate questionnaires or schedules and accurately enter and manage the collected data in spreadsheets using Microsoft Excel.
2. Present data using appropriate charts, tables, and visual tools to enhance interpretability.
3. Perform basic descriptive statistical analysis using Excel to derive meaningful insights.

Unit 1: Methods of Data Collection [09 lectures]

Types and sources of data, data collection methods, Concept of Population and Sample, Random sampling method. Preparation of questionnaire and schedule.

Unit 2: Introduction to MS Excel [06 lectures]

Introduction to Microsoft Excel, Data entry, formatting and basic cell operations.

Unit 3: Visualizing and Summarizing Data Using MS Excel [15 Lectures]

Diagrammatic and Graphical representation of data (using Line diagram, Bar graph, Pie charts, and Histogram). Preparation of frequency distribution. Measures of central tendency (arithmetic mean, geometric mean, harmonic mean, median, mode), quartiles, standard deviation, Coefficient of Variation, Coefficients of Skewness and Kurtosis, Karl Pearson's coefficient of Correlation, simple Linear Regression.

Fieldwork and Presentation

Students will be required to go for data collection on some topics and summarize the data using statistical methods in MS Excel. On the basis of this, each student will be required to submit a report and give a presentation.

Suggested Readings

1. Sarma, K.V.S. (2010). Statistics Made Simple: Do It Yourself on PC. Prentice Hall India Learning Private Limited, India
2. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol. I& Vol. II 8th Edn. The World Press, Kolkata.
3. Gupta. S.P (2022). Statistical Methods. Sultan Chand & Sons, 48th Edition.
4. Triola, M. F. (2017). Elementary statistics using Excel (6th ed.). Pearson.
5. Remenyi, D., Onofrei, G., and English, J. (2009). An Introduction to Statistics Using Microsoft Excel. Academic Publishing Ltd, U.K.
6. Bhattacharjee, D. (2011). Practical Statistics Using Microsoft Excel. Asian Books Private Limited.
7. Berk, K. N and Carey, P (2000), Data Analysis with Microsoft Excel, S. Chand & Company Ltd.

SKILL ENHANCEMENT COURSE (ZOOLOGY)
Semester 1 Paper 17
Paper Name/Title: Basics of Laboratory Practices in Zoology
Paper Code: SEC-01-B-17-03
Credits = 3 (Theory 2 Practical 1)
(External Evaluation 30 + Internal Assessment 20 + Practical 25): Total Marks 75

THEORY (2 credits)

Unit 1: Introduction to Biological Lab (5)

Practical and observation notebook maintenance, Instrument calibration, Glass wares and lab instruments cleaning and maintenance, museum specimens, specimen cataloging and preservation

Unit 2: Bioinstrumentation (9)

Basics of microscopy, spectrometry, colorimetry and microtomy. Autoclave, incubator, laminar air flow, centrifuge, pH meter, chromatography, electrophoresis, and pipetting (traditional and automatic)

Unit 3: Solution preparation (5)

General Math skills in reagent preparation, percent solutions, molarity, molality, normality, buffer solutions, reagents, and stains

Unit 4: Laboratory safety (3)

Basics of laboratory safety, handling and storage of chemicals and reagents, precautions in handling hazardous chemicals

PRACTICAL (1 credit)

1. Instrument calibration
2. Reagent preparation
3. Specimen submission

Reference books:

1. Ananta Swargiary. Biological Tools and Techniques. Kalyani Publications.
2. S.C. Nigam and Omkar. Experimental Animal Physiology and Biochemistry. New Age International Publishers.
3. Gerardus Blokdyk. Good Laboratory Practice - A complete guide. 5 Star Cooks Publishers.

BBA FIRST SEMESTER 2025-26			
Sl. No.	**Subject/Course**	**Paper Title**	**Credit**
1	Major-1	Fundamentals of Management	4
2	Minor-1	Basics of Accounting	4
3	AEC-1	Creative Writing	4
4	MDC-1	Principles of Micro Economics	3
5	VAC-1	Environmental Science	2
6	SEC-1	Computer fundamentals	3
Total Credits			**20**

BBA CORE

Semester 1 Paper 1

Paper Name/Title: Fundamentals of Management

Paper Code: BBA-CC-01-B-01-04

Credits: 4 (Theory-4 Practical: Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Learning Objectives:

- To familiarize the students with the fundamental concepts and functions of management in modern business environment.
- To equip the students with essential managerial skills for effective planning, organizing, staffing, directing and controlling.

Learning Outcomes: After completing this course, students will be able to –

- Understand the nature, process and functions of management in different organizational settings.
- Identify and apply managerial roles, skills and responsibilities in real-life business scenarios.
- Prepare and evaluate organizational structures and staffing processes.
- Assess the effectiveness of planning, decision-making, and controlling tools.
- Recognize the importance of digital transformation in the modern managerial process.

Units	**Particulars**	**Marks**
I	**Introduction to Management:** Definition – Nature, process and significance of management; Managerial Skills and Roles; Evolution of Management Thought: Classical, Behavioural, Quantitative, Modern and Systems Approaches; Functional Areas of Management, Emotional Intelligence in Management, Digital Transformation and Management in the VUCA world.	**15**
II	**Planning and Decision Making:** Nature , Process and Types of Decisions , Tools and Techniques for Effective Decision Making Types of Plans – Levels of Planning; Objectives and Management by Objective (MBO); Management by Exception (MBE); Digital Transformation in Planning.	**10**
III	**Organizing and Staffing:** Nature and purpose of organizing – Principles and types of organization; Organization Structure – Line, Line & Staff ,Functional & Matrix – Delegation – Span of Control – Decentralization – Conflict Management; Nature and Purpose of staffing – Components , Importance & Modern Staffing Components - Talent Acquisition , Diversity & Inclusion	**15**

IV	**Directing and Controlling:** Directing – Nature and importance – Principles – Motivation – Maslow's Need Hierarchy Theory, McGregor's Theory X and Y, Herzberg's Two Factor Theory; Controlling – Nature and Process – Essentials of Effective Control System – Techniques of Managerial Control – Coordination – Types and Need , Leadership – Types & Qualities , Contemporary Control Mechanisms : Real Time Performance Dashboards.	**20**

Suggested Readings:

- Essentials of Management – Koontz & O'Donnell
- Principles & Practices of Management – J.K. Jain
- Management – L.M. Prasad
- Management: Theory & Practice – C.B. Gupt

BBA CORE
Semester 1 Paper 2
Paper Name/Title: Basics of Accounting
Paper Code: BBA-CC-01-B-02-04
Credits: 4 (Theory-4 Practical: Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Learning Objectives:

- To introduce students to the fundamental principles, practices and techniques of accounting and
- To enable the students to understand, record, and interpret basic financial transactions and statements

Learning Outcomes: After completing this course, students will be able to –

- Understand accounting principles and their application in business
- Record transactions using appropriate accounting methods.
- Prepare trial balance and financial statements
- Analyze financial information for decision-making

Units	Particulars	Marks
I	**Introduction to Accounting:** Definition, Objectives and Functions of Accounting; Types of Accounting (Financial, Cost and Management Accounting) – Meaning and objectives; users of Accounting Information; Accounting Principles – List of Accounting Standards; Limitation of Accounting.	**10**
II	**Recording of Transaction:** Double Entry System of Accounting; Accounting Equation; Rules of Debit and Credit; Journal entries (including problems); Ledge posting (including problems); Trial Balance – objectives and preparation; Goods and Service tax Subsidiary Books : Purchase Book, Sales Book, Return Books; Cash Book – Single, Double and Triple; Petty cash Book	**20**
III	**Reconciliation and Rectification of Error:** Bank Reconciliation Statement – Meaning and preparation; Types of errors – Errors of Omission, Commission and Principle; Rectification of Errors with Journal Entries **Depreciation Accounting:** Meaning and need for charging depreciation,	**15**

	method of deprecation - Straight Line method and Written Down Value method. (Basic Sums)	
IV	**Final Accounts of Proprietary Concern:** Preparation of Trading, Profit and Loss account and Balance sheet of a proprietary concern with adjustments.	**15**

Suggested Readings:

- Accountancy – B.B Dam, Sujit Sikdar, R. Barman & B. Bora
- Accountancy – D.K. Goel, Rajesh Goel, Shelly Goel; Arya Publication
- Financial Accounting – Dr. S. N. Maheswari; Vikas Publication
- Financial Accounting – S. P. Jain and K.L Narang; Kalyani Publication

ABILITY ENHANCEMENT COURSE
Semester 1 Paper 1
Paper Name/Title: Creative Writing
Paper Code: BBA-AEC-01-B-01-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100

Learning Objectives:

- To improve writing skills and enhance self-expression and
- To develop imagination and creativity and experiment with different genres.

Units	Particulars	Marks
I	**Introduction:** Meaning of creative writing, Types of creative writing, Purpose of creative writing, Styles of creative writing, Steps of creative writing, Ways to improve Creative Writing	**15**
II	**Literary Devices:** Poetic Devices, Genre, Structure of a plot (theme, character, images and symbols, literary tropes)	**15**
III	**Analysis of a poem and a short story on the basis of Unit I and II:** Ozymandias of Egypt: P.B. Shelley The Necklace: G.D. Maupassant	**15**
IV	**Practical Exercises:** Writing a short story/ poetry, writing anecdotes, analysing a given poem (critical appreciation), Editing a passage, writing articles, Speech writing, Scripts writing, Travelogues, Blogs	**15**

Learning Outcomes: After completing this course, students will be able to –

- Learn to generate ideas and explore their imagination.
- Develop their writing skills, including structure, plot, character development etc.
- Develop confidence in their writing abilities.
- Learn to express themselves effectively through writing.

Suggested Readings:

- Creative Writing: Anjana Neira Dev, Anuradha Marwah, Swati Pal
- Creative Writing in English: Rajesh Debnath
- Harmony: An Anthology of Prose and Poetry

MULTI DISCIPLINARY COURSE
Semester 1 Paper 1
Paper Name/Title: Principles of Microeconomics
Paper Code: BBA-MDC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Learning Objectives:

- To introduce students to the fundamentals of principles of micro economics and
- To enable the students to understand, to analyse the decision-making process of consumer and producer and to apply economic concepts to real life scenarios.

Units	Particulars	Marks
I	**Demand, Supply and Market Equilibrium:** Individual Demand, Market Demand, Law of Demand, Individual Supply, Market Supply, Law of Supply, Elasticity of Demand and Supply, Market Equilibrium, Application in Real Life: Price Ceiling, Price Floor	**10**
II	**Consumer's Behaviour:** Concept of Utility: Cardinal and Ordinal Utility, Budget Line, Budget Constraints, Indifference Curve: Meaning, Properties, Consumer's Equilibrium.	**10**
III	**Theory of Production:** Basic Concepts: Long Run, Short Run, Variable Factor, Fixed Factor, Concepts of Product and relationship between them, Law of variable proportions, Isoquant and Iso-cost Line, Producers Equilibrium, Cost: concepts of cost, Traditional theory of cost.	**15**
	Market Structure: Perfect competition: basic features, Price – Output Determination, Monopoly: Basic Features, Price Discrimination, Monopolistic: Basic Features Oligopoly: Basic Features, Types of Oligopoly	**10**

Learning Outcomes: After completing this course, students will be able to –

- Understand micro economic principles and their application in real life scenarios
- Understand the characteristics of different market structures
- Prepare trial balance and financial statements
- Analyze financial information for decision-making

Suggested Readings:

- Principles of Micro Economics – H L Ahuja; S. Chand Publiction
- Modern Micro Economics – Koutosyannis; Palgrave Macmillan
- Micro economics – Pindyck, Rubinfeld and Mehta; Peason
- Principles of Microeconomics – Dominick Salvatore; Oxford University Press

VALUE ADDED COURSE
Semester 1 Paper 1
Paper Name/Title: Environmental Science
Paper Code: BBA-VAC-01-B-01-02
Credits = 2 (Theory 2 Practical Nil)
(External Evaluation 30 + Internal Assessment 20): Total Marks 50

Learning Objectives:

- To create awareness about environmental issues and sustainability among business students.
- To understand the interrelationship between environment and business activities.
- To promote the development of environmentally responsible business practices.

Units	Particulars	Marks
I	**Introduction to Environmental Studies:** Multidisciplinary nature of environmental studies; Scope and importance; Concept of sustainable development **Ecosystems -** What is an ecosystem? Structure and function of ecosystem: Energy flow in an ecosystem: food chains, food web and ecological succession. **Natural Resources:** Types, Renewable and Non-renewable Resources; **Land resources:** land use change; land degradation, soil erosion and desertification **Forest resources:** Deforestation: Causes and impacts due to mining, Construction of big dams and their effects on forests and people. **Water resources:** Use and over-exploitation of surface and ground water, floods, droughts. **Energy resources:** Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs,	**20**
II	**Environmental Pollution**: types, causes, effects and controls; Air, water, soil and noise pollution **Environmental Policies & Practices:** Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture	**10**

Project: 10 Marks (from Internal Marks)

Field work: Visit to an area to document environmental assets : river/forest/flora/fauna, etc; Visit to a local polluted site - Urban/Rural/Industrial/Agricultural; Study of common plants, insects, birds and basic principles of identification; Study of simple ecosystems- pond, river, stream.

Learning Outcomes: After successful completion of the course, students will be able to:

- Understand the fundamental concepts of environment, ecosystem, biodiversity, and natural resources.
- Identify and analyse various types of environmental pollution and suggest appropriate control measures.
- Evaluate the impact of environmental problems such as climate change on businesses, economy, and society.

Suggested Readings:

- Bharucha Erach : Text book on Environmental Studies, UGC, New Delhi
- Carson, R 2002. Silent Spring. Houghton Mifflin Harcourt.
- De A.K.: Environmental Chemistry, Wiley Eastern Ltd.

- Kaushik Anubha and C.P.Kaushik : Perspective in Environmental Studies, New Age International
- Rajagopalan, R. (2018). Environmental Studies. (3rd Edition) Oxford University Press
- S. C. Santra (2011): Environmental Science, New Central Book Agency

SKILL ENHANCEMENT COURSE
Semester 1 Paper 1
Paper Name/Title: Computer Fundamentals
Paper Code: BBA-SEC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Learning Objectives:

- To provide the students fundamental knowledge of computers, including their operations, basic architecture, software, hardware, and applications in the business environment.
- The course also aims to develop basic skills in word processing, spreadsheets, and presentations.

Units	Particulars	Marks
I	**Brief history of development of Computers:** Generations and its evolution, Characteristics of computers, Hardware, software, computer languages; Main areas of applications; Basic Architecture, Components and Functions of Computers, Computer Accessories.	**15**
II	**Types of Computers:** Analog, Digital, Hybrid, General purpose and Special purpose computers, Micro Computers, Mini Computers, main frame computers and Super Computers. Basic commands in MS Excel, Features, functions and uses of MS word, Mail Merge feature in MSWord, Basic Concepts of MS Power point.	**20**
III	**Operating System and Office Automation:** Booking concept, MS and open source operating systems, Introduction to system management, overview of languages, Compilers, interpreters, Assemblers, LAN, MAN, WAN, Wi-Fi, and Communication Channels. **Information Technology**: Fundamentals, Perspective, Applications and scope, Introduction to Internet, Browsers, applications and scope.	**10**

Learning Outcomes: After successful completion of this course, the student will be able to:

- Understand the basic concepts, characteristics, and classifications of computers, and explain the role of hardware and software in a computer system.
- Demonstrate knowledge of operating systems and perform basic operations using MS Office tools such as Word, Excel, and PowerPoint for business applications.
- Utilize the Internet and its services effectively for communication, information retrieval, and business-related activities including e-commerce and cloud computing.

Suggested Readings:

- Computer Fundamentals by D. P. Nagpal
- First Course in Computers by Sanjay Saxena
- Computer Fundamentals by V. Raja Raman
- Introduction to Computers by Leon &Leon

BSC IT FIRST SEMESTER 2025-26			
Sl. No.	**Subject/Course**	**Paper Title**	**Credit**
1	Major-1	Computer Systems and Programming in C	4
2	Minor-1	Discrete mathematics	4
3	AEC-1	English Communication-I	4
4	MDC-1	Self, Mind, and Human Values in the Digital Age	3
5	VAC-1	Environmental Science	2
6	SEC-1		3
Total			20

B. SC. (IT) CORE
Semester 1 Paper 1
Paper Name/Title: Computer Systems and Programming in C
Paper Code: BIT-CC-01-B-01-04
Credits = 4 (Theory 3 Practical 1)
(External Evaluation 45 + Internal Assessment 30 + Practical 25): Total Marks 100

(**Theory** = 45 contact hours over ~15 weeks → 3 hours/week
P**ractical** = 30 contact hours over ~15 weeks → 2 hours/week
Total = 5 contact hours per week)

Course Learning outcomes: At the end of the course, students will be able to:

- Understand the basic structure and functioning of computer systems and components.
- Write, compile, and execute programs using the C programming language.
- Apply decision-making and looping constructs to solve computational problems.
- Use arrays, strings, and pointers efficiently in program development.
- Perform file handling operations and debug C programs for error-free execution.
- Understand and implement user-defined functions to build modular programs.
- Use structures and unions to group related data in C programs.
- Develop problem-solving skills through algorithm design and implementation in C.

1. 10.Contents of Syllabus:

Unit 1: Introduction to Computer System: (12 hours)

Definition and Characteristics of Computers. Generations and Classification of computers. Block diagram of a computer: Input Unit,Output Unit, Storage Unit, CPU. Control Unit, Arithmetic Logic Unit, System bus, Stored program concept, Memory Hierarchy, Main Memory, Memory Address Map. Semiconductor Memory, Different types of semiconductor memory; Different types of Cache Memory: Levels of Cache, Magnetic Memory; Different types Optical Memory, Different types of magnetic memory. Software and Hardware. Types of Software: System, Application. Operating System Basics and Functions.

Unit 2: Introduction to Programming Concepts: (12hours)

Types of programming languages, Modular Programming, Structured Programming, Compilers and interpreters, Algorithms and Flowcharts. Overview of C Language: History of C,Characterset,Ctokens,Identifiers,Keywords,Datatypes,variables,Constants,Operators in C, I/O functions, Control statements, The C Preprocessor. Functions: Function prototypes, defining a

function, accessing a function, passing arguments to a function and recursion. Storage classes.

Unit 3: Arrays, Strings and Pointers:Arrays: (11 hours)

Single and multidimensional.Strings: Declaration, Initialization String Handling.Functions.Pointers: Declaration, Initialization, Pointer Arithmetic.Array of pointers, Pointers as Function arguments.Dynamic memory allocations.

Unit 4: Structures, Unions and File Handling in C: (10hours)

Structures:Definition,Declaration,Accessing Members.Arrays of Structures, Nested Structures.Unions: Definition and Differences with Structures.File Handling: File Operations (open, close, read, write).Modes: Text and Binary Files.

Lab Course: Programming in C (1 Credit – 30 Hours)

Total Programs: 40

Unit 1: Basics of C & Operators (Fundamentals – 10 Programs)

1. Display "Welcome to C Programming".
2. Input and display name, age, and percentage of a student.
3. Perform basic arithmetic operations (+, -, *, /, %).
4. Find area and perimeter of rectangle, circle, triangle.
5. Convert temperature from Celsius to Fahrenheit.
6. Swap two numbers with and without third variable.
7. Use sizeof operator for all data types.
8. Demonstrate operator precedence with a sample expression.
9. Evaluate quadratic equation roots.
10. Calculate gross salary with allowances and deductions.

Unit 2: Control Statements & Functions (Decision, Loops – 12 Programs)

11. Check whether a number is even or odd.
12. Check whether a year is a leap year.
13. Find greatest of three numbers.
14. Display multiplication table using loop.
15. Find factorial of a number using loops.
16. Generate Fibonacci series up to n terms.
17. Check for palindrome number.
18. Check for Armstrong number.
19. Count digits of a number.
20. Print prime numbers in a given range.
21. Demonstrate use of switch-case with menu-driven calculator.
22. Write user-defined functions (with return type) for sum, square, power.

Unit 3: Arrays, Strings, and Pointers (Data Structures – 10 Programs)

23. Input and display elements of a 1D array.
24. Find the maximum and minimum element in an array.
25. Sort an array using bubble/selection sort.
26. Add and multiply two matrices.
27. Search for an element in an array (linear search).

28. Count vowels, consonants, digits, and spaces in a string.
29. Reverse a string.
30. Check if a string is palindrome.
31. Demonstrate pointer arithmetic (increment, dereference).
32. Swap two values using pointers.

Unit 4: Structures, Unions, and File Handling (Advanced – 8 Programs)

33. Define a structure for student and print details.
34. Array of structures for employee payroll.
35. Nested structure for storing date and student information.
36. Difference between structure and union memory usage.
37. Write and read data from a text file.
38. Copy content from one file to another.
39. Count lines, words, and characters in a file.
40. Append text to an existing file.

List of Books:

1. Y. Kanetkar, *Let us C* (16th Edition),BPB Publications,NewDelhi 2018.
2. E. Balagurusamy, *Programmingin ANSIC* (8th Edition),Tata McGraw-HillPublication, NewDelhi, 2019.
3. B.S.Gottfried, *Programming with C*(3rd Edition),McGrawHillEducation, 2017.
4. B.W.Kernighan and D.M.Ritchie,*The C Programming Language* (2nd Edition),Pearson Education India, 2015.
5. Anita Goel,Computer Fundamentals, Pearson, 2010

B. SC. (IT) CORE
Semester 1 Paper 2
Paper Name/Title: Discrete Mathematics
Paper Code: BIT-CC-01-B-02-04
Credits = 4 (Theory 4 Practical Nil)
(External Evaluation 60 + Internal Assessment 40): Total Marks 100
(**Theory** = 60 contact hours over ~15 weeks → 4 hours/week)

Course Learning outcomes: At the end of the course, students will be able to:

- **Understand foundational concepts** of discrete mathematics including logic, sets, relations, functions, and combinatorics to apply in computing and problem-solving.
- **Apply mathematical reasoning and proof techniques** such as induction, contradiction, and direct proof in analyzing algorithms and data structures.
- **Model real-world problems** using graphs, trees, and recurrence relations relevant to computer science and IT.
- **Relate mathematical structures** with ancient Indian contributions in logic, arithmetic, a lgebra, and combinatorics (e.g., works of Pingala, Bhaskara, Panini).
- **Appreciate the relevance of Indian Knowledge Systems (IKS)** in the evolution of logical thinking, pattern recognition, and computational thinking.
- **Integrate traditional wisdom with modern problem-solving approaches**, drawing connections between ancient Indian texts and modern discrete mathematical frameworks.

Contents of Syllabus:

Part:A: Discrete Mathematics(3 credits) 45 hrs

Unit 1:Logic and Proof Techniques: 10hrs
Propositional and predicate logic.Logical connectives and truth tables.Logical

equivalences.Methods of proof: direct, indirect, contradiction

Unit 2: Sets, Relations, and Functions: 10 hrs

Set theory basics and operations.Relations and their properties.Equivalence relations.Functions and their types

Unit 3: Mathematical Induction and Recursion: 8 hrs

Principle of mathematical induction.Recursive definitions.Recurrence relations

Unit 4: Combinatorics and Counting Principles: 9hrs

Permutations and combinations.Pigeonhole principle.Inclusion-exclusion principle

Unit 5: Graph Theory: 8hrs

Introduction to graphs.Eulerian and Hamiltonian paths.Planar graphs

Part B: Indian Knowledge Systems (IKS) (1 Credit) 15 hrs

Unit 1: Introduction to Indian Knowledge Systems: 3 hrs

Meaning, scope, and significance of IKS.Historical overview and categories

Unit 2: Indian Logic: 3hrs

Nyaya philosophy basics.Tools of reasoning: Pramana.Types of inference

Unit 3: Ancient Indian Mathematical Concepts: 3hrs

Pingala's binary system.Meru-prastaara (Pascal's Triangle).Early algorithmic ideas

Unit 4: Panini's Grammar as Formal System: 3hrs

Ashtadhyayi and rule-based grammar.Links to modern computational theory.

Unit 5: Modern Relevance and Integration: 3hrs

Comparative perspectives with western systems. Applications in contemporary computing.Reflective discussion.

List of Books:

Discrete Mathematics

1. Discrete Mathematics and Its Applications — Kenneth H. Rosen
2. Discrete Mathematics — Seymour Lipschutz & Marc Lipson
3. Discrete Mathematical Structures — Bernard Kolman & Robert C.Busby

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Indian Knowledge Systems (IKS)

1. Indian Logic and the Study of Language — Jonardon Ganeri
2. Philosophy of Mathematics and Logic in India — S. K. Pandey
3. The Ashtadhyayi of Panini — Various translators (e.g., S. K. Belvalkar)
4. Mathematics in Ancient India: Early Sources and Global Context Kim Plofker

ABILITY ENHANCEMENT COURSE

Semester 1 Paper 1

Paper Name/Title: English Communication - I

Paper Code: BIT-AEC-01-B-01-04

Credits = 4 (Theory 4 Practical Nil)

(External Evaluation 60 + Internal Assessment 40): Total Marks 100

***Course Objectives**:*

- Strengthen foundational English grammar and vocabulary
- Build confidence in reading, writing, speaking, and listening
- Develop clarity in academic and interpersonal communication

Unit 1: Prose and Poetry (15 hours)

- The Lottery by Shirley Jackson(Prose)
- Strange Meeting by Wilfred Owen(Poem)
- Reading passages with questions
- Skimming, scanning, inference
- Vocabulary building through reading

Unit 2: Communication Skills & Writing Skills (15 hours)

- Listening and speaking skills
- Phonetics and pronunciation basics
- Situational dialogues: greetings, requesting, responding
- Paragraph writing and email writing
- Descriptive and narrative writing
  Letter writing: formal/informal

Unit 3: Functional Grammar (15 hours)

- Tenses, articles, sentence structure.
- Subject-verb agreement, prepositions, modals
- Voice and narration basics

Unit 4: Digital Etiquette (15 hours)

- Netiquette in professional communication
- Social media and blog communication basics
- Writing effective bios, captions, posts

MULTI DISCIPLINARY COURSE
Semester 1 Paper 1
Paper Name/Title: Self, Mind and Human Values in the Digital Age
Paper Code: BIT-MDC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75
(Theory = 45 contact hours over ~15 weeks → 3 hours/week)

Course Learning outcomes: At the end of the course, students will be able to:

- Develop awareness of the self and the mind.
- Understand the role of values in the digital era.
- Promote emotional well-being and ethical thinking.
- Reflect on how digital life affects identity, relationships, and society.

Contents of Syllabus:

Unit 1: Understanding the Self and Mind (9 hrs)
Concept of self and identity.Emotional intelligence and self-regulation.Growth mindset and mindfulness practices

Unit 2: Human Values and Moral Thinking (9 hrs)
Core human values: empathy, respect, integrity, compassion.Ethics vs values.Values in personal and professional life

Unit 3: Digital Life and the Self (9 hrs)
Self-image in social media.Digital addiction and attention economy.Online vs offline behavior

and mental health

Unit 4: Relationships and Communication in the Digital Age (9 hrs)
Authentic vs performative communication.Cyberbullying and digital boundaries.Digital empathy and responsible use

Unit 5: Inner Growth and Social Responsibility (9 hrs)
Finding purpose and meaning.Practicing gratitude and resilience.Role of youth in building a value-based society

List of Books:
Life on the Screen: Identity in the Age of the Internet – *Sherry Turkle*
The AI Mirror: Reclaiming Our Humanity in an Age of Machine Thinking – *Shannon Vallor*
Being You: A New Science of Consciousness – *Anil Seth*
Mind Change: How Digital Technologies Are Leaving Their Mark on Our Brains – *Susan Greenfield*
Transcend: The New Science of Self-Actualization – *Scott Barry Kaufman*

VALUE ADDED COURSE
Semester 1 Paper 1
Paper Name/Title: Environmental Studies
Paper Code: BIT-VAC-01-B-01-02
Credits = 2 (Theory 2 Practical Nil)
(External Evaluation 30 + Internal Assessment 20): Total Marks 50
(Number of required classes:30)

Course Learning outcomes: At the end of the course, students will be able to:
- Understand the multidisciplinary nature of environmental studies.
- Explore natural resources and their sustainable management.
- Learn about ecosystems and biodiversity and their conservation.
- Identify environmental pollution types, causes, and impacts.
- Analyze major environmental issues and relevant laws/movements.
- Promote sustainable development and responsible environmental behavior.

Contents of Syllabus:

UNIT 1: INTRODUCTION TO ENVIRONMENTAL STUDIES
Multidisciplinary nature of environmental studies; Scope of environmental studies; Environmental studies as a subject has a wide scope; Research and development in environment; Green advocacy; Green marketing; Green media; Environmental consultancy; Importance on environmental studies; Environmental studies have become significant for the following reasons; Environmental issues are global; Concept of sustainable development; economic development.

UNIT 2: ECOSYSTEM
Characteristics of ecosystem; Abiotic environmental factors of ecosystem; Biological effects of temperature; Functions of ecosystem; Environmental factors affecting the productivity in ecosystem; Importance of Phosphorus cycle; Types of Nitrogen Fixation; Structural features of the Forest ecosystem; Components of Grassland ecosystem; Biotic components; Succession of plants.

UNIT 3: ENVIRONMENTAL POLLUTION AND LAWS
Pollution; Composition of air; Secondary air pollutants; Effects of air pollution; Control measures; Case

studies; Effects of Water Pollution on living organisms; Oil pollution; Chromium; Control of water pollution; Control of soil pollution; Source of radioactive pollution; Effect of radioactive pollution; Solid waste management; Environment Protection Act, 1986; International agreements, policies and treaties; Nature reserves; Tribal population and rights; Human wildlife conflicts in the context of assam.

List of Books:

Environmental Studies – *Dr. Erach Bharucha*
Environmental Studies: From Crisis to Cure – *R. Rajagopalan*
Environmental Studies – *Benny Joseph*

SKILL ENHANCEMENT COURSE
Semester 1 Paper 1
Paper Name/Title: UNIX/LINUX Programming
Paper Code: BBA-SEC-01-B-01-03
Credits = 3 (Theory 3 Practical Nil)
(External Evaluation 45 + Internal Assessment 30): Total Marks 75

Unit 1: Linux Fundamentals (10 hours)

Linux OS architecture and shell concepts.File system hierarchy and file permissions.Basic commands: navigation, file handling, chmod, ps, kill.File redirection, pipes, filters: grep, awk, cut, sort

Unit 2: Shell Scripting (10 hours)

Shell types: Bash, Bourne.Variables, conditionals, loopsWriting basic shell scripts: automation examples.User input, command-line arguments

Unit 3: System Programming (10 hours)

File system calls in C: open(), read(), write(), close().Directory calls, stat(), and file metadata.Process creation: fork(), exec(), wait().Signal handling: signal(), kill()

Suggested Books:

1. Yashwant Kanetkar – Unix Shell Programming, BPB
2. W. Richard Stevens – Advanced Programming in the UNIX Environment, Addison-Wesley
3. Neil Matthew & Richard Stones – Beginning Linux Programming, Wrox

Credits: 1 (Practical Only)
Total Hours: 30
Total Practical Tasks: 10

Practical Questions

Unit 1: Linux Fundamentals **(10 hours)**

1. Basic Linux Commands
   Practice navigation and file handling:
   Use pwd, cd, ls, mkdir, rmdir, touch, cp, mv, rm.
2. File Permissions
   Use chmod to assign read, write, and execute permissions to files and directories for

different users.

3. Using Pipes and Redirection
   Combine commands using redirection (>, >>, <) and pipes (|).
   Example: ls -l | grep ".txt" > files.txt
4. Text Filtering with grep, cut, sort, and awk
   Practice commands to filter data from a text
   file.
   Example: Use cut -d':' -f1 /etc/passwd | sort | grep 'a'
5. Process Monitoring and Control
   Use ps, top, kill, sleep, and nice to view and manage processes.

Unit 2: Shell Scripting (10 hours)

6. Script with Variables and User Input
   Write a shell script that accepts user input (name and age) and displays it using variables.
7. Conditional Script
   Create a script using if...else to check whether a given number is even or odd.
8. Looping in Shell Script
   Write a shell script to print the first 10 natural numbers using a for or while loop.

Unit 3: System Programming in C (10 hours)

9. File Operations in C
   Write a C program using open(), read(), write(), and close() to copy content from one file to another.
10. Process Creation and Signal Handling
    Write a C program that demonstrates:

- Creating a child process using fork ()
- Executing a command using execl ()
- Handling signals like SIGINT using signal ()
- Using wait () to handle parent-child synchronization