REGIONAL INSTITUTE OF EDUCATION, NCERT, AJMER

PROGRAMME LEARNING OUTCOMES FOR ALL COURSES

I. B.Sc. B.Ed. I, II, III & IV year

PROGRAM LEARNING OUTCOMES

1. This course forms the basis od Science like physics, chemistry, biology, zoology and mathematics
2. After the completion of this course, learners will have the option to go for higher studies i.e M.Sc and then do research work in their respective fields.
3. It helps to develop a scientific temper and thus can prove to be more beneficial for society as scientific developments can make a nation or society grow at a rapid pace.
4. This course offers opportunities for various prospects.
5. After higher studies, students can join as scientific/ Assistant professors/ Ph.D. and can even look for professional job-oriented courses.

CC 1: PHYSICS

COURSE LEARNING OUTCOMES

Relativity, Mechanics, Oscillations And Waves

The learner will be able to:

- Recognize and use a mathematical oscillator equation and the wave equation, and derive these equations for certain systems.
- formulate and solve problems in mechanics and special relativity
- Explain how several waves or parts of waves interact and be able to calculate and analyze diffraction and interference phenomena and explain the conditions required for such phenomena to appear.
- Describe and calculate what happens when waves move from one medium to another and can explain dispersion and group and phase velocity.
- Explain several phenomena we can observe in everyday life that can be explained as wave phenomena, and identify basic principles, to explain various phenomena.

MATHEMATICAL BACKGROUND, PROPERTIES OF MATTER AND ELECTROMAGNETIC WAVES

The learner will be able to:

- explain and evaluate the Gradient of a scalar quantity, Divergence and Curl of a vector quantity.
- apply Poisson's and Laplace's equations to solve a variety of problems.
- understand the concept of articulate knowledge of magnetic forces to calculate various forces between different types of static and moving charges.
- describe the moments of charge distribution and the effect of dielectrics on different systems of charges.
- Explain the relation between atomic polarizability and electric susceptibility.

- Achieve an understanding of Maxwell's equations, the role of displacement current, gauge transformations, scalar and vector potentials, Coulomb and Lorentz gauge, and boundary conditions at the interface between different media.
- Apply Maxwell's equations to deduce wave equation, electromagnetic field energy, momentum and angular momentum density.
- The course will equip the learners with the required prerequisites to understand electrodynamics phenomena.

ELECTRICITY AND MAGNETISM

The learner will be able to:

- Gain insight into Fundamental laws and concepts in electricity and magnetism, especially about electrical circuits and the most common components such: as resistors, capacitors, and inductors-
- derive Gauss law and apply it to find electric field and potential due to various types of charge distributions
- understand the properties of static electric and magnetic fields and how they arise
- explain important historical experiments in the field of electricity and magnetism
- derive Biot-Savart law and apply it to find the magnetic field due to various types of current-carrying elements.
- Analyze different problems in electromagnetism using mathematical methods involving vectors and simple differential and integral calculus, both analytically and numerically
- understand the motion of charged particles in electric and magnetic fields
- understand the working of various experimental instruments such as CRO and cyclotron
- Account for the importance of electricity and magnetism in technological applications

KINETIC THEORY AND THERMODYNAMICS

The learner will be able to:

- learn and distinguish between real and ideal gases and the forces binding their molecules
- Describe basic concepts of Thermodynamics
- establish relations between various thermodynamic variables
- learn about vanderwaal gases, thermodynamic potential
- study Joule Thomson expansion and their application
- Judge the properties of pure substances
- gain knowledge of blackbody radiation and various laws depicting it and
- Formulate the first law of thermodynamics for a closed system and arrange the change in energy in the closed systems via heat and work transfer
- Apply the first law of thermodynamics to open systems.
- Assess thermodynamic applications using the second law of thermodynamics.
- Generate mass and energy balance equations for gas-vapour mixtures.
- Analyze energy changes in a chemical reaction using the first law of thermodynamic.

OPTICS AND LASERS

The learner will be able to:

- Relate basic concepts like interference and diffraction with everyday phenomena
- learn about various optical instruments like lenses and eyepiece and their uses
- learn about the phenomenon of polarization and types of polarized light and understand the working of a polarimeter

- understand the operation and construction of lasers, and their properties and know about different types of lasers such as ruby and He-Ne
- understand basic concepts of holography and their applications in medical, security etc

SOLID STATE PHYSICS, SOLID STATE DEVICES AND ELECTRONICS

The learner will be able to:

- Understand the elastic properties of solids and lattice vibration.
- Have an understanding of the magnetic properties of condensed matter.
- Have an understanding of the optical properties of solids and their relation to their electronic properties.
- differentiate between different types of solids - conductors, insulators and semiconductors
- Outline the importance of solid-state physics in modern society.
- develop an understanding of semiconductors devices and advanced materials like carbon nanotubes, fullerenes etc and their varied applications in medicine and technology
- get knowledge of basic devices like diodes, transistors, different types of transistors like MOSFET, and UJT and their everyday uses
- understand the working and uses of amplifiers and their general principles of operation

QUANTUM MECHANICS AND STATISTICAL PHYSICS

The learner will be able to:

- Demonstrate an understanding of statistical methods and concepts used to describe systems with many degrees of freedom.
- Explain the basic tenets of quantum theory, as well as their ramifications in microscopic physics.
- Solve problems related to the course content.
- Obtain and interpret experimental data on the physical phenomena discussed in the course.

ATOMIC, MOLECULAR AND NUCLEAR PHYSICS

The learner will be able to:

- understand fundamental concepts in nuclear physics and physics involved in alpha-beta and gamma decay.
- The capability of appreciating the importance of models and their role in physical phenomena
- Develop concepts in fission, and neutron cycle and also explore ideas in fields of particle accelerators.
- Appreciate the importance of developments in the fields of particle accelerators and their role in understanding the theoretical ideas
- Understand the deuteron problem and meson theory of nuclear force.
- A basic introduction to the field of particle physics by understanding the classification of elementary particles and quark model in brief.
- Ability to solve problems involving the theoretical concepts of simple and intricate levels.

CC 2: Chemistry

Course Learning Outcomes

B.Sc. B.Ed. I: CC-2 (I)- Inorganic Chemistry

The learner will be able to

- Acquire basic knowledge about atomic structure, periodic properties, Chemical Bonding and Ionic solids, Understanding the chemistry of s-and p-block elements, the fundamentals of the chemistry of the main group elements, and important real-world applications of many of these species, the Structure of Ionic solids, Acids and Bases and solvent system.
- Describe the fundamentals of acid/base chemistry, including pH calculations, and buffer behaviours.
- Understand of the chemistry of transition metals and their complexes.

B.Sc. B.Ed. I: CC-2 (II)- Physical Chemistry

The learner will be able to

- Acquire basic knowledge about Mathematical concepts and learn the basic concepts of nuclear radioactivity and Nuclear reactions.
- Enhance the understanding of learners in concepts related to Liquid, Colloidal states & Structure of Ionic solids, Behaviour of Gases, and concepts of chemical equilibrium and phase equilibrium.

B.Sc. B.Ed. II: CC-2 (I)- Inorganic Chemistry

The learner will be able to

- Gain an understanding of Coordination compounds, organometallic compounds, metal carbonyls of Transition Elements, Coordination chemistry and magnetic behaviour of complexes.
- Chemistry of inner transition elements (Lanthanide and Actinides).
- Concepts of Oxidation and Reduction and Principles involved in the extraction of the elements.
- Understand of Stability behaviour of Metal complexes.

B.Sc. B.Ed. II: CC-2 (II)- Organic Chemistry

The learner will be able to

- Acquire basic knowledge about the concept of hybridization and geometry of atoms and the three-dimensional structure of organic molecules, Stereochemistry and Reaction Mechanism, and General aspects of Organic Reactions; an understanding of nucleophiles, electrophiles, electronegativity and resonance.
- Basic knowledge about understanding of Cyclo alkanes, Cyclo Alkenes and Alkadienes, how to use their understanding of organic mechanisms to predict the outcome of reactions, the fundamentals of electronic structure and bonding in aromatic systems, reactivity patterns of aromatic molecules, chemical properties of Alkyl and Aryl Halides and general periodicity patterns of (organic/inorganic) molecules and the ability to design synthetic approaches to such species.
- Understand Arenes, Aromaticity and Electrophilic Substitution reactions.

B.Sc. B.Ed. II: CC-2 (III)- Physical Chemistry

The learner will be able to

- Comprehend the key points of thermodynamics.
- Solve the problems related to thermodynamics.
- Understand and appreciate the application of thermodynamics and perform experiments related to thermodynamics.
- Learn the basic principles of electrochemistry and its applications, chemical equilibrium and its relationship with thermodynamic quantities
- Understand and appreciate the application of catalysis.

B.Sc. B.Ed. III: CC-2 (I)- Organic Chemistry

The learner will be able to

- Gain an understanding of the fundamental electronic structure and bonding in carbonyl compounds, substituent effects on pKa (in the case of carboxylic acids), the reactivity of carbonyl compounds with both hard and soft nucleophiles (carboxylic acids, aldehydes and ketones), the ability of synthetic organic chemistry to prepare specific molecular targets selectively through a series of simple bond-forming processes.
- Know about important functional group transformations and bond-forming methods in organic synthesis
- Introduce learners to the chemistry of carbonyl compounds including structure and reactivity, 1,2- and 1,4-addition and enols and enolates. Chemistry of Nitrogen Compounds, Synthetic transformation of aryl diazonium salts, azo coupling.
- Predict the appearance of a molecule's vibrational spectra as a function of symmetry and uses in detailed organic structure analysis

B.Sc. B.Ed. III: CC-2 (II)- Physical Chemistry

The learner will be able to

- Evaluate the utility of UV/VIS spectroscopy as a qualitative and quantitative method.
- Determine the vibrations for a triatomic molecule and identify whether they are infrared-active.
- Determine whether the molecular vibrations of a tri-atomic molecule are Raman active.
- Explain the difference between Stokes and anti-Stokes lines in a Raman spectrum.
- Basic principles of Photochemistry and other photochemical processes.
- Chemical bonding from the valence bond model and molecular orbital theory, the limitations of classical mechanics at molecular length scales, the differences between classical and quantum mechanics, the connection of quantum mechanical operators to observables, probabilities, amplitudes, averages, expectation values, and observables. The connection between common approximation methods and standard chemical frameworks (Born-Oppenheimer approximation, molecular orbitals).

B.Sc. B.Ed. IV: CC-2 (I) Advance Chemistry

The learner will be able to

- Evaluate the utility of UV/VIS/NMR spectroscopy as a qualitative and quantitative method.
- Understand Chemistry of Biomolecules.
- The knowledge about Spectral & Magnetic properties of Transition Metal complexes.
- Understand the Bioinorganic Chemistry and Geochemical effect on the distribution of metals.
- Learn chemistry of Amino Acids, Peptides, Proteins and Nucleic Acids
- Chemistry of Heterocyclic Chemistry.
- Basic principles of Nano chemistry/Green chemistry and Inorganic polymers.

CC 3: ZOOLOGY

Course Learning Outcomes

1. B.Sc. B.Ed. I: CC-3 (I)- PAPER I: NON-CHORDATA

Learners will be able to

a) Relate the evolutionary trends in external morphology and internal structure.
b) Understand various modes of adaptations in non-chordates.
c) Classify several organisms coming under the category of non-chordates.
d) Understand evolutionary history and relationships of different non-chordates through functional and structural affinities.
e) Critically analyse organization, complexity and characteristic features of non-Chordates along with their significance and interactions with the environment.

2. B.Sc. B.Ed. I: CC-3 (II)- PAPER II: ANIMAL CELL BIOLOGY AND GENETICS

Learners will be able to

a) Comprehend the modern concepts of cell biology and genetics.
b) Apply the aspects of updated concepts of cell biology and genetics.
c) Develop awareness regarding inheritance.
d) Comprehend the understanding of the chemical basis of heredity.
e) Understand results of genetic experimentation on animals

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3. B.Sc. B.Ed. II: CC-3 (I)- PAPER I: CHORDATA

Learners will be able to

a) Explain vertebrates, their organisational hierarchies and complexities.
b) Classify chordates up to orders.
c) Categories protochordate groups and mammals up to subclasses
d) Understand the ecological role of different groups of chordates.
e) Understand various modes of adaptations in Chordata.
f) Understand the significance of the differences in physiological systems between the vertebrates.

4. B.Sc. B.Ed. II: CC-3 (II)- PAPER II: ANIMAL PHYSIOLOGY AND ENDOCRINOLOGY

Learners will be able to

a) Able to describe the physiology of respiratory, renal, endocrine and reproductive systems to define normal and abnormal functions.
b) Understand how physiological parameters are measured in mammals.
c) Explain the structure, function and regulation, of endocrine systems.
d) Know about the hormones and their concentration that changes with puberty or some other conditions like menstruation, pregnancy, stress or happy moments.
e) Understand the physiology at cellular and system levels.
f) Keep their body fit by knowing about it.

5. B.Sc. B.Ed. II: CC-3 (III)- PAPER III: EVOLUTION AND PALEONTOLOGY

Learners will be able to

a) Understand the evolution of various organisms including humans.
b) Explain theories of evolution with evidence.
c) Apply knowledge gained, on populations in real-time, while studying speciation, behaviour and susceptibility to diseases.
d) Get motivated to work towards mitigating climate change so that well-adapted species do not face extinction as a result of sudden drastic changes in the environment.
e) Use knowledge gained from the study of variations, and genetic drift to ensure that conservation efforts for small threatened populations are focused in the right direction.

6. B.Sc. B.Ed. III: CC-3 (I)- PAPER I: DEVELOPMENTAL BIOLOGY

Learners will be able to

a) Explain the events that led up to fertilization.
b) Describe the first four rounds of cell division in different groups.
c) Describe the stages and cellular mechanisms for gastrulation.
d) Learn interesting and unique post-embryonic development that happens in other animals.
e) Compare the development of organs and systems.

7. B.Sc. B.Ed. III: CC-3 (II)- PAPER II: ENVIRONMENTAL STUDIES, ETHOLOGY AND ECONOMIC ZOOLOGY

Learners will be able to

a. Define environment and its components.
b. Explain different kinds of pollution: sources, prevention and controls.
c. Understand the greenhouse effect and global warming and its implication on the globe.
d. Comprehend the concept of ethology: behaviour, motion, communication and societies
e. List out the economic importance of invertebrates (apiculture, aquaculture, sericulture) and vertebrates (fish and poultry).

8. B.Sc. B.Ed. IV: CC-3 (I) MOLECULAR GENETICS, BIOTECHNOLOGY AND INSTRUMENTATION

The learner will be able to

a) Describe the basic structure of nucleic acids at the molecular level.
b) Explain the underpinnings of the mechanism of DNA replication and repair.
c) Have a deeper understanding of DNA repair mechanisms, including mismatch repair, base excision, nucleotide excision repair mechanisms and the repair of double-stranded DNA.
d) Explain how mRNAs, rRNAs and tRNAs are synthesized and processed.
e) Acquire knowledge of the basic principles, preparations and handling required for animal cell culture.
f) Get a clear concept of the basic principles and applications of biotechnology.

CC 4: BOTANY

Course Learning Outcomes

1. B.Sc. B.Ed. I: CC-4(I)- PAPER I: DIVERSITY OF MICROBES AND LOWER PLANTS

After successful completion of this course, Learners will be able to:

a) Relate the evolutionary trends in external morphology and internal structure.
b) Understand various characters occurrence classification life cycles and evolution of nostoc, Anabaena, and Oscillatoria.
c) Know about types of mycelia, the structure of the fungal cell, nutrition and the economic importance of the fungal cell.
d) Learn about structure reproduction and the life history of lower plants.

2. B.Sc. B.Ed. I: CC-4 (II)- PAPER II: DIVERSITY OF CRYPTOGAMS (BRYOPHYTES AND PTERIDOPHYTES)

Learners will be able to:

a) Comprehend the diversity of cryptogam concepts of cell biology and genetics.
b) Understand the structure reproduction and evolutionary significance of cryptogams.
c) Know about geological time-scale fossils and fossilization processes.

3. B.Sc. B.Ed. II: CC-4 (I)- PAPER I: DIVERSITY OF SEED PLANTS

Learners will be able to
a) Understand the difference and characteristics of angiosperms and gymnosperms
b) Learn about the classification and anatomy of the vegetative and reproductive parts of Cycas.
c) Know about the economic importance of gymnosperms
d) Learn about vegetative propagation in both natural and artificial.

4. B.Sc. B.Ed. II: CC-4 (II)- PAPER II: SYSTEMATICS OF ANGIOSPERMS

Learners will be able to:
a. Know about the history aim and concepts of angiosperms taxonomy.
b. Learn about the principle, and rules of ICBN to derive the botanical nomenclature.
c. Identify the diversity of flowering plants.

5. B.Sc. B.Ed. II: CC-4 (III)- PAPER III: PLANT CELL BIOLOGY AND GENETICS

Learners will be able to
a) Understand the concept of cell structure and cell organelles.
b) Explain theories of evolution with evidence.
c) Chalk out the basic difference between prokaryotic and eukaryotic cells.
d) Learn about the Mendal laws of inheritance, and mutation.

6. B.Sc. B.Ed. III: CC-4 (I)- PAPER I: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS

Learners will be able to:

a.) know about morphological, anatomical and developmental patterns in flowering plants.
b.) know about the reproductive parts their development and mechanism of reproduction and life cycle pattern.
c. Understand the structure of the root and shoot system.
d.) Economic values of the lower plants.
e.) understand the difference between pollen-pistil interaction and fertilization.

7. B.Sc. B.Ed. III: CC-4 (II)- PAPER II: PLANT PHYSIOLOGY

Learners will be able to
a) Define the various physiological aspects involved in plant development.
b) Explain different types of enzymes and their mechanisms.
c) Understand the concept of respiration and transport mechanisms.
d) Understand the mechanism of photosynthesis, respiration, nitrogen and lipid metabolism.
e) Isolate starch, pectin and various nutritive product from the plants.

8. B.Sc. B.Ed. IV: CC-4(I) GENETIC ENGINEERING, MOLECULAR, BIOLOGY, ECOLOGY, AND ECONOMIC BOTANY

The learner will be able to:

a. Understand the concept of tools and techniques of plant tissue culture.
b. Apply the aspects of updated concepts of cell biology and genetics.
c. Explain the underpinnings of the mechanism of DNA replication and repair.
d. Have a deeper understanding of DNA repair mechanisms, including mismatch repair, base excision, nucleotide excision repair mechanisms and the repair of double-stranded DNA.
e. Understand the concept of the biological spectrum and ecological succession.
f. Acquire knowledge of the basic principles, preparations and handling required for plant cell culture.
g. Get a clear concept of the basic principles and applications of genetic engineering.
h. Understand the importance of cultivation and some products like oil-yielding plants, fibre-yielding, plants, spices and medicinal plants.

CC 5: MATHEMATICS

PROGRAMME LEARNING OUTCOMES

i) Ability to acquire in-depth knowledge of algebra, calculus, geometry, differential equations and several other branches of mathematics. This also leads to the study of related areas like computer science and physical science. Thus, this Program helps learners in building a solid foundation for higher studies in mathematics.
ii) The skills and knowledge gained have intrinsic beauty, which also leads to proficiency in analytical reasoning. This can be utilized in modelling and solving real-life problems.
iii) To recognize patterns and to distinguish between essential and irrelevant aspects of problems.
iv) Utilize mathematics to solve theoretically and applied problems by critical understanding, analysis and synthesis.
v) Ability to share ideas and insights while seeking and benefitting from the knowledge and insight of others. This helps them to learn to behave responsibly in a rapidly changing interdependent society.
vi) Ability to communicate mathematics effectively by written, computational and graphic means.
vii) Create mathematical ideas from basic axioms.
viii) Ability to apply multivariable calculus tools in physics, economics, optimization, and understanding the architecture of curves and surfaces in plane and space etc
ix) Able to present mathematics clearly and precisely, make vague ideas precise by formulating them in the language of mathematics, describe mathematical ideas from multiple perspectives and explain fundamental concepts of mathematics to non-mathematicians.

x) This Program will also help learners to enhance their employability for jobs in banking, insurance and investment sectors, data analysis and various other public and private enterprises.

Course Learning Outcomes

Calculus

1. Find limits of functions (graphically, numerically and algebraically)
2. Analyze and apply the notions of continuity and differentiability to algebraic and transcendental functions.
3. Determine derivatives by a variety of techniques including explicit differentiation, implicit differentiation, and logarithmic differentiation. Use these derivatives to study the characteristics of curves. Determine derivatives using implicit differentiation and use them to study the characteristics of a curve.
4. Construct detailed graphs of nontrivial functions using derivatives and limits.
5. Use basic techniques of integration to find particular or general antiderivatives.
6. Demonstrate the connection between area and the definite integral.
7. Apply the Fundamental theorem of calculus to evaluate definite integrals.
8. Use differentiation and integration to solve real-world problems such as rate of change, optimization, and area problems.

Vector Geometry and Linear Algebra

1. Be able to gain proficiency in solving systems of Linear equations using matrices and demonstrate a working knowledge of algebraic properties of matrices.
2. Be able to understand Euclidean Vector spaces, their inherent and algebraic structure and the accompanying geometry.
3. Be able to acquire the facility to work with general vector spaces, linear transformations, coordinate vectors and the changing of bases.
4. Be able to develop an algebraic and geometric understanding of eigenvalues and eigenvectors and eigenspaces.
5. Be able to prove Cayley- Hamilton theorem, Schwartz inequality, and Gramschmidt orthogonalisation process.
6. Be able to solve linear systems of equations using a variety of techniques and select the best technique for a given system.
7. Be able to define Linear Transformations and find the domain, range, kernel, rank, and nullity of a linear transformation.
8. Be able to apply vectors, inner products, and linear transformations to real-world situations.
9. Use computational techniques and algebraic skills essential for the study of systems of Linear equations, matrix algebra, vector spaces, eigenvalues and eigenvectors, Orthogonality and Diagonalization.

Real Analysis

1. Understand many properties of the real line $\mathbb{R}$ and learn to define the sequence in terms of functions from $\mathbb{R}$ to a subset of $\mathbb{R}$.
2. Understand the limit, continuity and differentiability.
3. Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and calculate their limit superior, limit inferior, and the limit of a bounded sequence.
4. Apply the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.
5. Learn some of the properties of Riemann integrable functions, and the applications of the fundamental theorems of integration.

DIFFERENTIAL EQUATION

1. Understand the genesis of ordinary differential equations.

2. Learn various techniques for getting exact solutions of solvable first-order differential equations and linear differential equations of higher order.
3. Know Picard's method of obtaining successive approximations of solutions of first-order differential equations, passing through a given point in the plane and the Power series method for higher-order linear equations, especially in cases when there is no method available to solve such equations.
4. Grasp the concept of a general solution of a linear differential equation of arbitrary order and also learn a few methods to obtain the general solution of such equations.
5. Formulate mathematical models in the form of ordinary differential equations to suggest possible solutions to the day-to-day problems arising in physical, chemical and biological disciplines.
6. Apply a range of techniques to solve first & second-order partial differential equations.
7. Model physical phenomena using partial differential equations such as heat and wave equations.

ABSTRACT ALGEBRA

1. Understand binary operation.
2. Recognize the mathematical objects called groups.
3. Link the fundamental concepts of groups and symmetries of geometrical objects.
4. Explain the significance of the notions of cosets, normal subgroups, and quotient groups.
5. Grasp the knowledge about Rings and Ideal.
6. Analyze the consequences of Lagrange's theorem.
7. Learn about structure-preserving maps between groups and their consequences.

COMPLEX ANALYSIS

1. Visualize complex numbers on the plane and stereographic projection of complex planes on the Riemann sphere.
2. Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy-Riemann equations.
3. Learn the role of the Cauchy Goursat theorem and the Cauchy integral formula in the evaluation of contour integrals.
4. Apply Liouville's theorem to the fundamental theorem of algebra.
5. Understand the convergence, term-by-term integration and differentiation of a power series.
6. vi) Learn Taylor and Laurent series expansions of analytic functions, classify the nature of singularity, poles and residues and application of Cauchy Residue theorem.

MECHANICS

1. define and understand basic mechanical concepts related to discrete and continuous mechanical systems.
2. describe and understand the vibrations of discrete and continuous mechanical systems.
3. describe and understand the planar and spatial motion of a rigid body.
4. describe and understand the motion of a mechanical system using LagrangeHamilton formalism.
5. Understand velocity and acceleration.
6. Understand circular and cycloidal motion.

NUMERICAL ANALYSIS

1. Solve an algebraic or transcendental equation using an appropriate numerical method.
2. Approximate a function using an appropriate numerical method.
3. Solve a differential equation using an appropriate numerical method.
4. Evaluate a derivative at a value using an appropriate numerical method.
5. Solve a linear system of equations using an appropriate numerical method.
6. Perform an error analysis for a given numerical method.
7. Prove results for numerical root-finding methods.
8. Calculate a definite integral using an appropriate numerical method.

DISCRETE MATHEMATICS

i) Learn about partially ordered sets, lattices and their types.
ii) Understand Boolean algebra and Boolean functions, logic gates, switching circuits and their applications.

iii) Solve real-life problems using finite-state and Turing machines.
iv) Assimilate various graph theoretic concepts and familiarize me with their applications.

PEDAGOGY OF MATHEMATICS

i) Acquainted with meaningful pedagogical analysis of various topics in secondary school mathematics.
ii) Appreciate the conception and significance of arithmetic and modern mathematics in daily life.
iii) Acquire innovative strategies and techniques for successful in teaching and learning modern mathematics.
iv) Explore the diverse backgrounds and interests children bring to the classroom from their environment and experience to promote a positive attitude towards modern mathematics concepts
v) Familiarize the nature and functions of various instructional resources

EDUCATION COMPONENT FOR SCIENCE

SECTION I: EXPERIENCES FOR TEACHER ENRICHMENT

ETE 1: STRENGTHENING PROFESSIONAL DEVELOPMENT

On completion of the course the student-teacher will be able to:

- develop a sense of initiative, imagination and discernment of learning potential of the resources available in their surroundings.
- take some initiative in pursuing interests outside the formal course work from a range of available resources - the institute library, websites on the internet, local events and facilities, as well as local issues (in the neighbourhood or town),members of local community and visiting resource persons.

PC 1: PEDAGOGY OF SCIENCE (PCM)

1. **B.Ed. I (PCM)**
   On completion of the course, the learner will be able to:
   a) Understand science as a discipline through its philosophical and epistemological perspectives.
   b) Comprehend the approaches and strategies of learning science at secondary level.
   c) Apply pedagogic aspects in teaching-learning of science effectively by adopting appropriate teaching strategy
   d) Construct test items to measure objectives belonging to various cognitive levels
   e) Use teaching aids effectively in teaching science
   f) Learn how a student constructs scientific knowledge that helps in development of critical understanding.
   g) Understand science discipline to a holistic understanding of science education situated in learner context and social realities
2. **B.Ed. II (PCM)**
   On completion, of course, the learner will be able to:
   a) Learn and critically comprehend science curriculum at different stages of schooling.
   b) Select and practice various teaching strategies in class and laboratory
   c) Identify human and material resources available around and utilize them in the teaching-learning process.
   d) Practice reflective teaching in their class and daily life
   e) Apply innovative evaluation and assessment techniques in their class.
3. **B.Sc. B.Ed. III (PCM)**
   On completion, of course, the learner will be able to:
   a) Understand science as a discipline through its philosophical and epistemological perspectives.
   b) Learn and critically comprehend science curriculum at different stages of schooling.
   c) Apply pedagogic aspects in teaching-learning of science effectively by adopting appropriate teaching strategy
   d) Learn how a student constructs scientific knowledge that helps in development of critical understanding.
   e) Apply innovative evaluation and assessment techniques in their class.

PC 1: PEDAGOGY OF PHYSICAL SCIENCE

After the completion of the course, the prospective teacher will be able to:

- gain insight into the salient features of curriculum, strategy and principles of curriculum and science curriculum for the secondary level.
- Develop an understanding of history, philosophy, the nature of science and its role and importance in daily life
- analyze science textbooks and science syllabi of primary and secondary levels.
- Identify and use learning resources from the immediate environment.
- apply the approaches and strategies of learning physical science at secondary level.
- apply pedagogic aspects in teaching-learning of physical science effectively by adopting appropriate teaching strategy.
- explain a topic of physical science effectively by adopting an appropriate teaching strategy in the classroom setting.
- Prepare lesson plans using the constructivist approach.
- Construct different tests to measure objectives belonging to various cognitive levels of the learners.
- use teaching learning materials effectively in teaching Physical science content at secondary level.

PC 2: PEDAGOGY OF MATHEMATICS

Course learning outcome

- To develop an insight into the meaning, nature, scope and objective of mathematics education.
- To appreciate the role of mathematics in day-to-day life.
- To appreciate the aesthetic aspect of mathematics.
- To appreciate mathematics to strengthen the student's resources.
- To channelize, evaluate, explain and reconstruct their thinking. To construct appropriate assessment tools for evaluating mathematics learning.
- To appreciate the process of developing a concept.
- To develop ability to use the concepts for life skills.
- To develop competencies for teaching-learning mathematics through various measures.
- To understand the nature of children's mathematical thinking through direct observations of children's thinking and learning processes.
- Appreciate the historical perspective and contribution of Indian mathematicians in development of the subject.
- appreciate and explore Technology Integrated Mathematics Module (TIMM) based on different subject-specific open source software on various concepts of Geometry at the secondary stage; and
- Appreciate and develop dynamical digital applets with an emphasis on the process involved in teaching and learning mathematics at a secondary stage.
- interpret the principles of child development for planning lessons
- understand the principles of learning
- Design mathematics laboratory.
- Develop competencies in designing appropriate diagnostic and remedial tests.
- Construct appropriate assessment tools for evaluating mathematics learning.
- Appreciate the importance of mathematics lab in learning mathematics.
- Develop the competencies in preparation for appropriate teacher aids unit plans lesson plan and test items.
- Construct appropriate assessment tools for evaluating mathematics learning.
- appreciate and develop dynamical digital applets with emphasis on the process involved in teaching and learning mathematics at the secondary stage

PC 2: PEDAGOGY OF BIOLOGICAL SCIENCE

1. **B.Ed. I (CBZ)**

   On completion of the course, the learner will be able to:

   a) Develop a broad understanding of principles and knowledge used in biological science education.
   b) Prepare and use lesson plans and unit plans required for instructional purposes.
   c) Develop their essential skills for practising biological science education.

d) Manage instructional activity in such a way that the vast majority of the learner attain most of the objectives.
e) Integrate with other school subjects and identity and relate an everyday experience with learning biological science.
f) Formulate meaningful inquiry episodes, problem-solving situations, investigatory and discovery learning projects based on upper primary, stages during teaching-learning of biological science.

2. **B.Ed. II (CBZ)**

On completion of course, the learner will be able to:

a) Relate biological concepts with their social reality.
b) Explore the process skill in science and develop competency to organise laboratory facilities and equipment in teaching-learning of biological science.
c) Identify human and material resources available around and utilize them in the teaching-learning process of biology.
d) Apply innovative evaluation and assessment techniques in their biology classroom.
e) Develop skills required in the profession along with future opportunities for professional development.

3. **B.Sc. B.Ed. III (CBZ)**

On completion of course, the learner will be able to:

a) Develop a broad understanding of principles and knowledge used in biological science education.
b) Explore the process skill in science and develop competency to organise laboratory facilities and equipment in teaching-learning of biological science.
c) Develop skills required in profession along with future opportunities for professional development.
d) Identify human and material resources available around and utilize them in the teaching-learning process of biology.
e) Formulate meaningful inquiry episodes, problem-solving situations, investigatory and discovery learning projects based on upper primary, stages during teaching-learning of biological science.

CC 6: CURRICULUM AND SCHOOL

Unit 1: Concept of Curriculum

The Learner will be able to

a. Understand the meaning & nature of the curriculum.
b. Understand the importance of curriculum in school.
c. Differentiate between Curriculum Framework, Curriculum and Syllabus.
d. Understand the meaning & concern of hidden Curriculum.

Unit 2: Curriculum Determinants & Consideration

The Learner will be able to

a. Understand socio-political aspiration in Educational Policies
b. Understand various foundations of Curriculum Planning.
c. Understand the relevance & specificity of educational objectives.

Unit 3: Curriculum Development (at school level)

The learner will be able to

a. Reflect on various trends in Curriculum development.
b. Understand process of curriculum making.

Unit 4: School: the site of Curriculum Engagement

The learner will be able to

a. Understand the basic concept of Educational Management.
b. Understand the role of external agencies in providing curriculum & pedagogic support.

Unit 5: Curriculum Implementation & Renewal

The learner will be able to

a. Understand the process of curriculum evaluation & revision.
b. Learn about the evolving assessment modes.
c. Select & Develop learning resources.

II. B.A. B.Ed. I, II, III & IV YEAR

PROGRAM LEARNING OUTCOMES

1) Understand basic concepts and ideas of social science, languages, and literature as a discipline
2) Respecting the historical, socio-cultural, geographical and language diversity
3) the learners will be able to recognise the effects of diversity access and power of communication
4) developing skills and abilities regarding cultural, ethical and constitutional values to make them responsible citizens
5) Imparting in the learners the values of truthfulness, solidarity, empathy and moral and spiritual conduct
6) To build shape and enhance perspectives regarding economical, social and environmental sustainability to transform them into competent global citizens
7) The learners will be able to identify, formulate and review research literature, analyse complex problems and offer substantiated conclusions using cognitive principals of social science, language and literature.
8) To inculcate the spirit of team work, respect each other's opinions and develop consensus for problem-solving
9) The learners will be able to interact skillfully, and ethically and develop and deliver professional presentations
10) The learners will be able to develop research attitude, critical thinking skills and holistic interdisciplinary approach towards lifelong experiential learning

B.A BEd I Year

CC 1: GENERAL ENGLISH

Course learning outcome

- This is essentially a language-based course. It aims at making learners read English prose to enlarge their comprehension of the language and encourage them to develop reading habits.
- It also aims at giving them basic skills in grammar, widening their vocabulary and teaching them to write simple and correct English.

ENGLISH LITERATURE

PAPER I: A BACKGROUND TO ENGLISH LITERATURE

The learners will be able to:

- have an understanding of the historical development of English language and literature
- make themselves aware of various literary genres and figures of speech
- make themselves familiar with various schools of thought and literary movements.

PAPER II: POETRY AND DRAMA

The learners will be able to:

- Acquaint with certain specimens of Elizabethan and Metaphysical and Neoclassical poetry and drama.
- Develop their analytical and imaginative powers through readings in poetry and their skills in dialogue development through their readings in drama.
- Derive pleasure out of their readings in poetry and Shakespearean drama

CC 2: GEOGRAPHY

PAPER I: PHYSICAL GEOGRAPHY (LITHOSPHERE)

The objective of this unit is

- to introduce the latest concepts in Physical Geography, essentially geomorphology: to the learners of geography in a brief but adequate manner.

- Learners will be able to work in groups on the practical aspects of the knowledge gained during contact/lecture periods.
- Peer group teaching may be encouraged.

PAPER II: HUMAN GEOGRAPHY

The objectives of this course are

- to acquaint the learners with the nature of the human-environment relationship and human capability to adopt and modify the environment under its varied conditions from primitive lifestyle to modern living.
- to identify and understand the environment and population in terms of their quality and spatial distribution pattern
- to comprehend the contemporary issues facing the global community.

CC 3: HISTORY

PAPER I: EVOLUTION OF INDIAN CULTURE AND THOUGHT

OBJECTIVE

- Our youngsters must be made aware of the glorious part of our country. Our past is not only glorious but it is a source of inspiration.
- It is our sages who contributed to enriching our past. Our sages did never hanker after personal glorification. They spread Indian culture and civilization not only within our country but also in distant lands. It is only for this reason that our country became the centre of 'knowledge tourism' and the greatest centres of learning thrived in this country.
- Our country also becomes a centre of fine arts such as dance, music, drawing painting etc. Moreover, no country in this world can boast of the artistic monuments, in number as well as the quality of which we in this country can proud of.

PAPER II- EARLIEST TIMES TO REFORMATION

OBJECTIVES

- The intention behind having the Semester at the early stage is to let him be imbued with a panoramic view of centre's history.
- It will have the student have a generalist approach.
- As a result, they will not lose themselves in the world.
- This will guard against having an over-inflated view of his own country's history.
- It will become easier to have a macro view before studying the micro.

CC 4: POLITICAL SCIENCE

PAPER I- POLITICAL THEORY

OBJECTIVES

On completion of the course the learners will be able to:

- Understand the nature and scope of Political Science.
- Distinguish between the traditional and modern perspectives of Political Science.
- To understand some basic concepts of Political Science.
- Analyse state, its Component, Various theories of its origin and their bearing upon the nature of State
- Understand and analyses various systems of governance.
- Acquaint themselves with various aspects and agents involved in the political process.

• To understand and analyses the basis aspects of certain Political ideologies.

PAPER II REPRESENTATIVE INDIAN POLITICAL THINKERS

OBJECTIVES:

• To understand the fundamental of ancient Indian view regarding state, society and man and also the ancient Indian view point regarding human virtues, and individuals' place in the social order.

• To understand and appreciate major streams of social and religious reforms in India in the 19th century and also the interaction between religion and political awakening.

• To understand and appreciate different streams of nationalism in Indian thinking.

• To understand the various aspects of the Political thoughts of Mahatma Gandhi, the Democratic socialism of J. L. Nehru, Redical humanism of M. N. Roy.

• Understand and analyses political and social philosophy of Ambedkar, J.P.Narayan and Ram Manohar Lohiya.

CC 5: ECONOMICS

PAPER I: ECONOMIC CONCEPTS AND METHODS

OBJECTIVE:

- The Learners are expected to: -
- Understand the various fundamental Concepts of Economics and Statistics (Meaning, nature, scope and significance of fundamental Concepts).
- Distinguish between micro and macro Economics, Static and dynamic Analysis and stock and flow variables.
- Acquaint them with Indian economic thinkers and major source books.
- Understand the importance of National Income in Economic Welfare.
- Familiarise them with banking system of the Country.

PAPER II: MICRO ECONOMICS

OBJECTIVE

- The Learners are expected to: -
- Develop an understanding of important principles of micro economic.
- Understand individual economic unit behaviour
- Know how prices and output of goods/services and factors of production are determined.
- Understand the type of market and their equilibriums

B.A. B.Ed. II YEAR

CC 1: ENGLISH

PAPER I: PROSE AND FICTION

The learners will be able to

• Develop their comprehension skills through reading various types of prose.

• Develop their reading habits and literary taste through some long specimens of prose.

PAPER II: POETRY AND DRAMA

The learners will be able to

- Make themselves familiar with pre-romantic, romantic and Victorian poetry.

- Enjoy and appreciate romantic traits such as the obsession with the past, mystery, beauty and love of Nature.
- Enjoy and understand drama and improve their dramatic skills.

CC 2: GEOGRAPHY

PAPER I: PHYSICAL GEOGRAPHY (CLIMATOLOGY AND OCEANOGRAPHY)

Objectives:

- This Semester on physical geography is structured into components of climatology and oceanography.
- The aspects of climatology emphasize the constituents of the atmosphere, the dynamic nature of the processes associated with it and their contribution to making the earth habitable.
- The course content also leads to the identification of climatic differentiation on the earth, and the consequences of human activities on the atmospheric processes.
- The component of oceanography similarly deals with the coastal processes and describes the vast and diversified resources the oceans hold.

PAPER II: BIOSPHERE AND BIOGEOGRAPHY

Objectives

- This paper on physical geography is structured into components of Bio-Geography.
- This aspect emphasizes the constituents of the dynamic nature of the processes associated with it and their contribution to making the earth habitable.
- The course content also leads to the identification of different resources on the earth

PAPER III: ECONOMIC GEOGRAPHY

Objectives:

- The basic economy of the world is undergoing rapid transformation in recent times.
- The process of such transformation of economic activities from primary to secondary and tertiary stages is dynamic.
- In view of this, the objectives of this course are to integrate the various factors of economic development and to acquaint the learners with this dynamic aspect of economic geography.

CC 3: HISTORY

PAPER I - Indian History (Earliest times to 650 A.D.)

Objectives:

- To provide knowledge of the sources of the period.
- The learners shall be able to know the legacies of the early history of India.
- The study of this Semester shall provide the know-how of the origin of republics and the system of republican administration.
- To give the knowledge of the rich administrative traditions of ancient India
- The learners shall come in touch with the pride of ancient Indian society and religion.
- This Semester shall provide knowledge of the spread of Indian culture in other countries. The student will be informed about South Indian History.

PAPER II: World History (From enlightenment to 2000 A.D.)

OBJECTIVES

- It is intended to let the learners have a panoramic view of the modern history of the world since the Renaissance and Reformation.
- This will complete his study of world history.

- The candidate will have a bird's eye view of the whole history of the world.
- This will prepare him for an interplay between the micro and macro.

CC 4: POLITICAL SCIENCE

PAPER I - COMPARATIVE GOVERNMENT AND POLITICS

OBJECTIVES

On the completion of the course the learners will be able to:

- Acquire knowledge about the constitutional systems of different countries of the world.
- Understand the different patterns of relationship between the Executive, Legislature and Judiciary prevailing in different kinds of political systems.
- Understand the composition, functions and position of legislatures in different countries.
- Understand the role of Judiciary and nature of Judicial Review prevalent in different political systems.
- Acquaint themselves with various aspects and agencies of political process in different systems.

PAPER II - INDIAN POLITICAL SYSTEM

OBJECTIVES

On the completion of the course the learners will be able to:

- Acquire knowledge about the historical background of constitutional development in India.
- Understand the contribution of different streams of a national movement in India.
- Acquaint themselves with salient features of the Indian Constitution.
- Appreciate philosophical postulates of the constitution based on Preamble, Fundamental Rights and Duties and DPSP.
- Understand the composition, functioning, role and position of Parliament in India.
- Understand the pattern of relationship between the Executive and Legislative in India and also the composition, functions and role of the Executives.
- Acquaint themselves with the judicial system of the country and also the nature of the judicial review and its recent trends such as judicial activism.
- Acquire knowledge regarding the federal system of the country and governance at the state level.
- Understand the constitutional bases, functioning and performance of local government (both rural and urban) and instruments of public participation with special reference to Rajasthan.
- Understand the social and economic realities of the country and also the interaction between social and political factors in the country.
- To evaluate the electoral system of the country and to identify the areas of electoral reforms.
- To understand and evaluate women's issues in Indian politics.

CC 5: ECONOMICS

PAPER I: MACRO ECONOMICS

Objective:

The Learners are expected to: -

- Understand the behaviour of any economy in general and National Income determination in particular.
- Acquaint in Construction of National Income and social Accounts.
- Familiarise yourself with the different Concepts and Measurement of national income.
- Familiarise with classical theory, Keynesian theory and their main principles.

PAPER II: INDIAN ECONOMY

OBJECTIVE The Learners are expected to: -

- Understand the structure, economic problems, and economic policies of various sectors of the Indian Economy.
- Develop the ability to appraise Critically the various issues related to various problems of the Indian Economic.
- Familiarise with different New issues and polices adopted by the Indian Government.
- Promote values with the various ideas of Indian economic thinkers

B.A. B.Ed. III YEAR

CC 1: ENGLISH

PAPER I: PROSE AND FICTION

Objectives:

The learners will be able to

- develop their comprehension skill through readings in various types of prose
- develop their reading habits through some long specimens of prose

PAPER II: POETRY AND DRAMA

Objectives:

The learners will be able to

- make themselves familiar with modern English Poetry.
- appreciate the Indian English Poetry in the pre-independence and post-independence era.
- enjoy drama and improve their dramatic skills.

CC2: GEOGRAPHY

PAPER II: GEOGRAPHY OF INDIA

Objectives:

- To present a comprehensive, integrated and empirically based profile of India.
- The course is designed to present the role of geographical positioning of India in moulding its geopolitical personality and its inter-relations with other countries.

PAPER II: WORLD REGIONAL GEOGRAPHY

Objectives:

- To familiarize the learners with the different places and people of different countries.
- Besides this, they will able to know our Neighbouring Countries also.
- They are supposed to understand the relationship between geographical facts and human responses.

CC3: HISTORY

PAPER I: INDIAN HISTORY 650 A.D. to 1526 A.D.

OBJECTIVES

- To enlighten the learners about the rich literary and archaeological heritage of the sixth and seventh centuries onwards.
- To provide knowledge about the Rajputs of north India and their achievements.
- This Semester will highlight South Indian history and its contact with the rest of India.
- To give the knowledge of Turkish conquests and Khilji administrative and economic reforms.

- The Semester will show how the Tughlaq rulers contributed to the state and society in India.
- This Semester will highlight the rise of regional powers in India in the 16th century.

PAPER II: INDIAN HISTORY (1526-1857 A.D)

OBJECTIVES:

- The period under review marks a very crucial phase in the study of Indian History and attempts to answer questions that hitherto have defined answers.
- The Mughal Empire attempted to seek solutions to issues which had an all India character and lasting impact. This shift and change in emphasis are vital for a student of History who attempts to study it on a national basis.
- The inherent contradictions in the Mughal policy have to be understood in their proper perspective to shed fresh light on the decline of the Mughal Empire such approaches are objective.
- The reader/student should fully understand the mechanism which affected the factors which led to the establishment and consolidation of British power in India. This time of reasoning will force the student to think afresh on many issues.

CC 4: POLITICAL SCIENCE

PAPER I: REPRESENTATIVE WESTERN POLITICAL THINKERS

OBJECTIVES

- Understand the fundamental contours of classical western political thoughts.
- Understand the basic features of medieval political thought and the impact of reminiscence shift from the medieval to modern era.
- Understand the social contract theory and appreciate its implications on the perception of state in terms of its purpose and role.
- Understand the fundamental terms of different schools of liberal and realistic streams of western political thought.
- Understand the Marxian philosophy to operate and analyse also some trends of western political theory in the post-Marxian era.

PAPER II: INTERNATIONAL RELATIONS

OBJECTIVE

- Acquaint themselves with various approaches to the study of international politics.
- Understand important concepts which provide the framework for understanding international politics.
- Understand and take stock of the events and trends in international politics after World War II. 96
- Understand the quest of developing countries for their identity and self-determination in the era of the cold War.
- Understand and critically appreciate the salient features of foreign policies of some major powers.
- Understand and appreciate the determinants and features of India's foreign policy and India's relations with its neighbouring countries.
- Understand and acquaint themselves with recent developments and emerging trends in international politics.
- Understand and critically evaluate the role and functioning and impact of various organizations for regional cooperation.

CC 5: ECONOMICS

PAPER I: MONEY, BANKING AND PUBLIC FINANCE

OBJECTIVE The Learners are expected to

- Understand the meaning and usage of impacts of money on the economy and functioning of banks and different aspects of public finance.
- Develop the ability to appraise Critically the issues related to inflation, deflation, and reflation.

PAPER II: QUANTITATIVE TECHNIQUES

OBJECTIVE The Learners are expected to :

- Understand the meaning definition and basic Concepts of Statistics and Mathematics.
- Understand the use of different tools and techniques of measurement to solve various statistical problems.
- Understand various methods and their uses in economics.

B.A. B.Ed. FOURTH YEAR

CC1: ENGLISH

PAPER I: INTRODUCTION TO LINGUISTICS

Objectives: The learners will be able to :

- familiarize themselves with fundamental concepts of the elements of Linguistics in general, and the linguistic structure of English in particular.
- understand how language functions as a system
- understand how speech sounds are produced and function in a language
- Have an in-depth understanding of grammatical and semantic aspects of language

PAPER II: LANGUAGE, LITERATURE AND EDUCATION

Objectives: The learners will be able to :

- Understand the importance of language in different aspects of human life
- Know the relationship between language and education, language and culture, language and literature, language and aesthetics
- Understand the importance of curriculum, syllabus and textbooks
- Have an in-depth understanding of the status of language in various policies, commissions and committees formulated by the Government of India

CC2: GEOGRAPHY

PAPER I: HISTORY OF GEOGRAPHICAL THOUGHT

Objectives :

- To familiarize the learners with the origin, evolution and development of the conceptual aspects of Geography.
- They are supposed to understand the relationship between geographical facts and human responses.

CC 3: HISTORY

PAPER I INDIAN FREEDOM STRUGGLE (FROM 1857 TO 1947 AD)

OBJECTIVES :

- To provide the knowledge of the first war of Independence 1857 to the learners.
- Learners shall come to know about the role of peasants, tribal's and others in the Indian freedom movement.
- To enlighten the learners about the freedom of the press struggle.
- This Semester will highlight the beginning of revolutionary activities in India during the first world war era.
- Learners shall be informed about the revolutionary activities and their leaders, who contributed to the Indian freedom struggle from abroad.
- To provide knowledge of the revolutionary heroes of Indian freedom movement as Bhagat Singh, Ram Prasad Bismil and Chandra Shekhar Azad.

- Learners will come to know about the IONOA and Subhash Chandra Bose and their armed resistance.
- The contribution of Gandhian Satyagraha and the Gandhian Movement is highlighted this Semester.
- This Semester will provide knowledge of the circumstances that led to the Indian freedom and participation of the Indian masses.

PAPER II CONTEMPORARY INDIA (1947-2000 A.D.)

OBJECTIVES:

- This Semester is the most crucial information for the study of Indian History.
- We are close to the present. The knowledge of history unfolds and leads us to the present.
- We try to understand how we got where we are but writing about this period is the most difficult.
- We have to trade a path free of the quagmire of politics.
- Truth and only truth must be explored however unpalatable it could be

CC4: POLITICAL SCIENCE

PAPER -I HUMAN RIGHTS: THEORY AND PRACTICE

OBJECTIVE

- Understand the meaning and nature of Human rights
- Acquire the capacity of distinguished human rights perspectives in different ideological frameworks.
- Acquaint themselves with the socio-political history of Human rights.
- Understand the Human Rights dimension of certain concepts, such as Liberty, Justice etc.
- Understand the worldwide concern for Human rights as evinced through the Universal proclamation of Human rights.
- Understand the nature and scope of Human rights as proclaimed in the Constitution of India. • Appreciate and evaluate the institutional legal arrangement for the protection of human rights in India.
- Appreciate and analyse the social economic environment for human rights in India as also the relevant social issues associated with Human rights.
- Understand and appreciate specific context of women, and children as regards Human rights. • Appreciate the role of civil society institutions for the protection of Human rights.

PAPER – II PUBLIC ADMINISTRATION: THEORY AND PRACTICE

OBJECTIVE

- Understand the meaning, nature and scope of Public Administration.
- Acquaint themselves with the impact of technological development and Public Administration.
- Evaluation of new perspectives in public administration and management.
- Understand the interrelation between politics and administration.
- Understand the various approaches to the study of administrative systems.
- Appreciate various theories of organizations
- Enable themselves to understand administrative behaviour, theories of leadership, motivation and communication.
- Understand various aspects of personnel administration.
- Acquaint themselves with recent trends and issues in public and administrative reforms and the concept of good governance.

CC 5: ECONOMICS

PAPER I: INTERNATIONAL ECONOMICS

OBJECTIVE

Learners are expected to :

- Understand the importance of the study of international economics.
- Understand the difference between inter-regional and international trade.
- Develop Critical thinking about globalization and an open economy.
- Understand various theories of international trade.

PAPER II: DEMOGRAPHY

OBJECTIVE

Learners are expected to :

- Understand the various theories of demographic transitions.
- Develop the skills of the techniques of analysis.
- Familiarise yourself with the different Concepts of demography.
- Develop the ability to appraise Critically the issues related to the increasing population.
- Know the New population policy, population health, poverty and environmental linkage in India.

EDUCATION COMPONENT FOR ARTS

PC I-PEDAGOGY OF HINDI/ENGLISH/URDU

On completion of the course, the learner will be able to:

- understand the nature and resources of language and issues related to language acquisition and language learning.
- acquire knowledge about the role, status and objectives of teaching English as a second language in India.
- To train the students in the theory and practice of teaching and learning Urdu and use Urdu in real-life situations
- develop the four basic skills i.e. listening, speaking, reading and writing in students.
- enrich their knowledge of English/Hindi vocabulary, and structures.
- improvise and use appropriate aids for teaching English.
- know, compare and analyse various methods of and approaches to teaching English as a second language.

PC2: PEDAGOGY OF SOCIAL SCIENCES

Course Learning Outcomes

On completion of the course, the prospective teachers will be able to

- explain the place of social sciences in school curriculum
- and reflect on different aspects of inclusive classrooms in social sciences.
- act role of facilitator in providing additional support to learners with different abilities.
- utilize social science corner (resource centre) to facilitate learning in social sciences.
- express his/her experiential knowledge in the process of becoming a social science teacher.
- analyse textbooks of social science, question paper and answer scripts.
- perform different pedagogical strategies in a democratic classroom situation.
- develop professional outlook and humane approach among learners

PC 3: LEARNING TO FUNCTION AS A TEACHER

Objectives of the Course: On completion of the Course, the learners will be able to:

- understand the activities to be carried out during the school internship programme.

- observe classroom teaching, and various school activities and gain a feel of the multiple roles of a teacher.
- develop skills in content analysis, preparing TLM and observing classroom processes.
- plan and implement teaching-learning activities for peers and actual classroom.

EDUCATION COMPONENT FOR SCIENCE AND ARTS BOTH

CC 6: VISION OF EDUCATION IN INDIA: CONCERNS AND ISSUES

Course Learning Outcome

On completion of the course, the learners will be able to:

- Understand and analyse basic educational concepts, their premises and contexts that are unique to education
- Critically analyse various philosophical systems and teachings of philosophical thinkers of the east and west and their relation with education in framing aim of education, curriculum, methods of teaching etc.
- Understand the determinants of the purposes and processes of education
- Understand the role of education as an agency of social transformation.
- Reflect critically on concerns and issues of contemporary Indian schooling.
- Analyse development of education in the light of socio-economic, political and cultural development.

CC6: LEARNER, LEARNING AND COGNITION

Course Learning Outcome

After the completion of the course, the learners will be able to

- understand the individual development in the socio-cultural context of the learners
- develop an understanding of the impact/influence of socio-cultural context in shaping human development, especially with respect to the Indian context
- to acquire theoretical perspectives and develop an understanding of dimensions and stages of human development with respect to behaviouristic, socio-cognitivist and constructivist approaches
- analyse a wide range of cognitive skills and affective processes in human learning
- reflect the implicit understanding of the nature and kinds of learning
- appreciate and evaluate the critical role of learners based on individual differences, and social contexts and draw out implications for schools and teachers.

SES 3: ADDRESSING SPECIAL NEEDS IN INCLUSIVE SCHOOL

Course learning Outcome

- On completion of the course, the learner will be able to:
- demonstrate knowledge of different perspectives on children with disabilities and develop positive attitudes towards children with special needs
- understand policy perspectives and laws pertaining to education of children with special needs.
- plan need-based programmes for all children with varied abilities in the classroom
- to develop and use various teaching and learning materials in an inclusive classroom
- to apply specific teaching strategies involving skills in teaching special needs children in inclusive school
- incorporate innovative practices to respond to education of children with special needs

CC 6: SCHOOLING, SOCIALIZATION & GENDER CONCERNS

Schooling Socialization and Identity

Unit 1: Socialization and Development of Self

The learner will be able to

a. Understand the nature & process of socialization.
b. Understand parenting style & its impact.
c. Understand the interface between home, community and school.

Unit 2: Emergence of "Person" & "Identity"

The learner will be able to

a. Understand the process and determinants of identity formation.
b. Understand the influence of peer groups, media, technology and globalization on identity formation.

Unit 3: Schooling & Identity Formation

The learner will be able to

a. Understand how the school helps in the process of identity formation.
b. Know the role of school in developing national, secular and humanistic identities.

Unit 4: Coping with social complexities: Role of Education

The learner will be able to

a. Reflect on one's aspirations & possibilities to develop a growing sense of agency as a "teacher", "professional" as well as "human being".
b. Understand the relevance of education for peace-oriented values & peaceful living.

Unit 5: Gender & Education

The learner will be able to

a. Learn about gender issues in school & curriculum.
b. Understand issues related to marginalized women.

ETE 1: ENRICHING LEARNING THROUGH INFORMATION ANDCOMMUNICATION TECH.

The learner will be able to

- Apply knowledge of computing requirements and mathematics for technology solutions in business applications.
- Analyze a problem and identify and define the computing requirements for the appropriate solutions.
- Design and use spreadsheets and database applications
- Develop an understanding of professional, ethical, legal, security, and social issues and responsibilities. Explain ethical and legal issues impacting information technology.
- recognize, understand and appreciate ICT as an effective learning tool for learners and as enormous functional support to teachers.

ETE 2: YOGA, HEALTH AND WELL BEING

On completion of the course, the learner will be able to:

- understand the importance of games, sports and yoga for the development of holistic health.
- know the status, identify health problems and be informed of remedial measures.
- know about safety and first aid.
- acquire the skills for physical fitness.
- practice yoga asanas, meditation and relaxation.
- understand various policies and programmes related to health, physical education and yoga.

SECTION II: EXPERIENCES FOR SOCIAL AND ENVIRONMENTAL SENSITIVITY.

SES 1 - WORK EXPERIENCE: ELECTRICITY AND ELECTRONICS

- On completion of the course, the learner will be able to
- recognize and use different tools/materials/instruments.
- read the sketch/drawing of the job/project.
- develop the skills for making simple projects/models.
- acquire skill to assemble/prepare simple electric circuits.
- acquire skills to use electronic components.
- identify faults in electronic components.
- develop the ability in repairing simple instruments used at the secondary level.
- inculcate healthy values related to work culture.

SES 1 - WORK EXPERIENCE - AGRICULTURE (PRACTICES)

On completion of the course, the learner will be able to
- understand the meaning and scope of agriculture.
- understand all about seeds, imported weed, manures etc.
- acquire skills in practices of seed sowing, planting materials etc.
- understand practices of different ornamental and horticulture crops.
- recognise different field practices like earthing, hoeing, weeding watering etc. • inculcate healthy values related to work culture

SES 2: ART AND AESTHETIC

Course Learning Outcomes

After completion of the following course the learners will be able to:

1) Comprehend the concept of different Art forms.
2) Express their ideas and emotions freely related to their educational life.
3) Use various art forms in teaching the content of different subjects.
4) Develop creativity and insight towards aesthetic pleasure and appreciation.
5) To make the learners and society aware of the rich cultural heritage of their region as well as of the whole country.

SES4: WORKING WITH THE COMMUNITY

On completion of the course, the learner will be able to:
- acquaint themselves with the factors working in the society/community i.e., knowledge of social realities.
- develop the dignity of labour among them.
- arouse their interest in the social and economic reconstruction of the country.
- make themselves aware of the educational problems and needs of society.
- enable themselves for preparing youth for sustainable development.
- develop their personality through community service.

CC 7 - ASSESSMENT FOR LEARNING

Objectives of the course:

On completion of the course, the learner will be able to:

- gain a critical understanding of issues in assessment and evaluation
- become cognizant of key concepts such as tests, measurement,examination, formative and summative assessment, and evaluation
- understand different kinds and forms of assessment that aid studentlearning
- use a wide range of assessment tools, learn to select and constructthem appropriately

- evolve realistic, comprehensive and dynamic assessment proceduresthat can keep the whole student in view and understand the use of action research in solving problems

PC 1: LEARNING TO FUNCTION AS A TEACHER (SCHOOL INTERNSHIP)

On the completion of the course the learners will be able to:

- observe the classes of regular teachers and peers and learn about the teaching-learning process and classroom management.
- develop skills in planning and teaching in an actual classroom environment.
- reflect, learn to adapt and modify their teaching for attaining learning outcomes for students.
- maintain a Reflective Journal.
- acquire skills in conducting Action Research/ Case Study.
- inculcate organisational and managerial skills in various school activities.
- create and maintain resources for teaching and learning in internship schools.
- work with the community in the interest of the learner and their learning outcomes.

III. B.Ed. FIRST & SECOND YEAR

CC 1: BASICS IN EDUCATION

Objectives of the Course:

On the completion of course, the learner will be able to:

- understand and analyze educational concepts, their premises and contexts thatare unique to education.
- understand the nature and purpose of education with reference to schoolknowledge.
- learn to avail opportunity for interactive and reflective modes of learning.
- understand the concepts of teacher and learner's autonomy.
- become aware of importance of values and value formation process ineducation.

CC 2: LEARNER, LEARNING AND COGNITION

Course Learning Outcome

After the completion of the course, the learners will be able to

- understand the individual development in the socio-cultural context of the learners
- develop an understanding of the impact/influence of socio-cultural context in shaping human development, especially with respect to the Indian context
- to acquire theoretical perspectives and develop an understanding of dimensions and stages of human development with respect to behaviouristic, socio-cognitivist and constructivist approaches
- analyse a wide range of cognitive skills and affective processes in human learning
- reflect the implicit understanding of the nature and kinds of learning
- appreciate and evaluate the critical role of learners based on individual differences, and social contexts and draw out implications for schools and teachers.

CC 3: CURRICULUM AND SCHOOL

Unit 1: Concept of Curriculum

The Learner will be able to

- Understand the meaning & nature of the curriculum.
- Understand the importance of curriculum in school.
- Differentiate between Curriculum Framework, Curriculum and Syllabus.
- Understand the meaning & concern of hidden Curriculum.

Unit 2: Curriculum Determinants & Consideration

The Learner will be able to

- Understand socio-political aspiration in Educational Policies
- Understand various foundations of Curriculum Planning.
- Understand the relevance & specificity of educational objectives.

Unit 3: Curriculum Development (at school level)

The learner will be able to

- Reflect on various trends in Curriculum development.
- Understand process of curriculum making.

Unit 4: School: the site of Curriculum Engagement

The learner will be able to

- Understand the basic concept of Educational Management.
- Understand the role of external agencies in providing curriculum & pedagogic support.

Unit 5: Curriculum Implementation & Renewal

The learner will be able to

- Understand the process of curriculum evaluation & revision.
- Learn about the evolving assessment modes.
- Select & Develop learning resources.

PC 1: PEDAGOGY OF ENGLISH/HINDI/URDU

Course Learning Outcomes

After completion of the course, the learner will be able to:-

1. Understand English grammar and its use in academic writing.
2. Comprehend the nature and function of language for effective communication
3. Differentiate between language acquisition and language learning and understand multilingualism as a resource.
4. Develop four basic language skills listening, speaking, reading, and writing and apply them in real-life situations.
5. Apply various techniques, methods, and approaches to language in the academic field and prepare a lesson plan for the teaching-learning process

PC 1: PEDAGOGY OF SCIENCE (PCM) PART 1

4. **B.Ed. I (PCM)**
   On completion of the course, the learner will be able to:
   h) Understand science as a discipline through its philosophical and epistemological perspectives.
   i) Comprehend the approaches and strategies of learning science at secondary level.
   j) Apply pedagogic aspects in teaching-learning of science effectively by adopting appropriate teaching strategy
   k) Construct test items to measure objectives belonging to various cognitive levels
   l) Use teaching aids effectively in teaching science
   m) Learn how a student constructs scientific knowledge that helps in development of critical understanding.
   n) Understand science discipline to a holistic understanding of science education situated in learner context and social realities
5. **B.Ed. II (PCM)**
   On completion of course, the learner will be able to:
   f) Learn and critically comprehend science curriculum at different stages of schooling.
   g) Select and practice various teaching strategies in class and laboratory
   h) Identify human and material resources available around and utilize them in the teaching-learning process.
   i) Practice reflective teaching in their class and daily life
   j) Apply innovative evaluation and assessment techniques in their class.
6. **B.Sc. B.Ed. III (PCM)**
   On completion of course, the learner will be able to:
   f) Understand science as a discipline through its philosophical and epistemological perspectives.
   g) Learn and critically comprehend science curriculum at different stages of schooling.
   h) Apply pedagogic aspects in teaching-learning of science effectively by adopting appropriate teaching strategy
   i) Learn how a student constructs scientific knowledge that helps in development of critical understanding.

j) Apply innovative evaluation and assessment techniques in their class.

PC 1: PEDAGOGY OF PHYSICAL SCIENCE

After the completion of the course, the prospective teacher will be able to:

- gain insight into the salient features of curriculum, strategy and principles of curriculum and science curriculum for the secondary level.
- Develop an understanding of history, philosophy, the nature of science and its role and importance in daily life
- analyze science textbooks and science syllabi of primary and secondary levels.
- Identify and use learning resources from immediate environment.
- apply the approaches and strategies of learning physical science at secondary level.
- apply pedagogic aspects in teaching-learning of physical science effectively by adopting appropriate teaching strategy.
- explain a topic of physical science effectively by adopting an appropriate teaching strategy in the classroom setting.
- Prepare lesson plans using the constructivist approach.
- Construct different tests to measure objectives belonging to various cognitive levels of the learners.
- use teaching learning materials effectively in teaching Physical science content at secondary level.

PC 2: PEDAGOGY OF MATHEMATICS (PART 1)

Course learning outcome

- To develop an insight into the meaning, nature, scope and objective of mathematics education.
- To appreciate the role of mathematics in day-to-day life.
- To appreciate the aesthetic aspect of mathematics.
- To appreciate mathematics to strengthen the student's resources.
- To channelize, evaluate, explain and reconstruct their thinking. To construct appropriate assessment tools for evaluating mathematics learning.
- To appreciate the process of developing a concept.
- To develop ability to use the concepts for life skills.
- To develop competencies for teaching-learning mathematics through various measures.
- To understand the nature of children’s mathematical thinking through direct observations of children’s thinking and learning processes.
- Appreciate the historical perspective and contribution of Indian mathematicians in development of the subject.
- appreciate and explore Technology Integrated Mathematics Module (TIMM) based on different subject-specific open source software on various concepts of Geometry at the secondary stage; and
- Appreciate and develop dynamic digital applets with an emphasis on the process involved in teaching and learning mathematics at the secondary stage.
- interpret the principles of child development for planning lessons
- understand the principles of learning
- Design mathematics laboratory.
- Develop competencies in designing appropriate diagnostic and remedial tests.
- Construct appropriate assessment tools for evaluating mathematics learning.
- Appreciate the importance of mathematics lab in learning mathematics.
- Develop the competencies in preparation for appropriate teacher aids unit plans lesson plan and test items.
- Construct appropriate assessment tools for evaluating mathematics learning.

appreciate and develop dynamic digital applets with emphasis on the process involved in teaching and learning mathematics at the secondary stage

PC 2: PEDAGOGY OF BIOLOGICAL SCIENCE

4. **B.Ed. I (CBZ)**

   On completion of course, the learner will be able to:

g) Develop a broad understanding of principles and knowledge used in biological science education.
h) Prepare and use lesson plans and unit plans required for instructional purposes.
i) Develop their essential skills for practising biological science education.
j) Manage instructional activity in such a way that the vast majority of the learner attain most of the objectives.
k) Integrate with other school subjects and identity and relate an everyday experience with learning biological science.
l) Formulate meaningful inquiry episodes, problem-solving situations, investigatory and discovery learning projects based on upper primary, stages during teaching-learning of biological science.

5. B.Ed. II (CBZ)

On completion of course, the learner will be able to:

f) Relate biological concepts with their social reality.
g) Explore the process skill in science and develop competency to organise laboratory facilities and equipment in teaching-learning of biological science.
h) Identify human and material resources available around and utilize them in the teaching-learning process of biology.
i) Apply innovative evaluation and assessment techniques in their biology classroom.
j) Develop skills required in profession along with future opportunities for professional development.

6. B.Sc. B.Ed. III (CBZ)

On completion of course, the learner will be able to:

f) Develop a broad understanding of principles and knowledge used in biological science education.
g) Explore the process skill in science and develop competency to organise laboratory facilities and equipment in teaching-learning of biological science.
h) Develop skills required in profession along with future opportunities for professional development.
i) Identify human and material resources available around and utilize them in the teaching-learning process of biology.
j) Formulate meaningful inquiry episodes, problem-solving situations, investigatory and discovery learning projects based on upper primary, stages during teaching-learning of biological science.

PC2: PEDAGOGY OF SOCIAL SCIENCES

Course Learning Outcomes

On completion of the course, the prospective teachers will be able to

- explain the place of social sciences in school curriculum
- reflect on different aspects of inclusive classrooms in social sciences.
- act role of facilitator in providing additional support to learners with different abilities.
- utilize social science corner (resource centre) to facilitate learning in social sciences.
- express his/her experiential knowledge in the process of becoming a social science teacher.
- analyse textbooks of social science, question paper and answer scripts.
- perform different pedagogical strategies in a democratic classroom situation.
- develop professional outlook and humane approach among learners

PC 3: LEARNING TO FUNCTION AS A TEACHER

On completion of the Course, the learners will be able to:

- understand the activities to be carried out during school internshipprogramme.
- observe classroom teaching, and various school activities and gain a feel of themultiple roles of a teacher.
- develop skills in content analysis, preparing TLM and observing classroomprocesses.
- plan and implement teaching-learning activities for peers and actual classroom

PC 4 - ASSESSMENT FOR LEARNING

On completion of the course, the learner will be able to:

- gain a critical understanding of issues in assessment and evaluation
- become cognizant of key concepts such as tests, measurement, examination,formative and summative assessment, and evaluation
- understand different kinds and forms of assessment that aid student learning
- use a wide range of assessment tools, learn to select and construct themappropriately
- evolve realistic, comprehensive, and dynamic assessment procedures that can keep the whole student in view
- understand the use of action research in solving problems

ETE 1: STRENGTHENING LANGUAGE PROFICIENCY (SLP)

After completion of the course, the learner will be able to:

1. Understand the importance of description and narration of an event along with its interpretation.
2. Identify minor and major concepts of a text.
3. Explore education sources for academic writing.
4. Choose the required reference books for extracting relevant content.
5. Analyze the structure of a text for supporting ideas and examples.

ETE 2: ENRICHING LEARNING THROUGH INFORMATION AND COMMUNICATIONTECHNOLOGY

On the completion of the Course, the learner will be able to

- recognize, understand, and appreciate ICT as an effective learning tool forlearners and as enormous functional support to teachers.

ETE 3: HEALTH AND WELL BEING

On completion of the course, the learner will be able to:

- understand the importance of games, sports, and yoga for the development of holistichealth.
- know the status, identify health problems and be informed of remedialmeasures.
- know about safety and first aid.
- acquire the skills for physical fitness.
- practice yoga asanas, meditation and relaxation.
- understand various policies and programmes related to health, physicaleducation, and yoga.

ETE 4: EXPLORING LIBRARY AND OTHER LEARNING RESOURCES

On completion of the course, the learner will be able to:

 develop a sense of initiative, imagination, and discernment of learning potential of the resources available in their surroundings.

 take some initiative in pursuing interests outside the formal course work froma range of available resources -the institute library, websites on the internet, local events and facilities, as well as local issues (in the neighbourhood or town), members of local community and visiting resource persons.

Section II: Experiences for Social and Environmental Sensitivity

SES 1: EDUCATION FOR PEACE

On completion of the course, the learner will be able to:

- acquire knowledge, attitudes, values, skills and competencies to;
- become aware of the role of education in building peace as a dynamic social reality;
- understand and resolve conflicts within, and mediate others;
- empower themselves and transcend barriers of identity;
- use pedagogical skills and strategies in and out of classroom for promotingpeace at school level;
- act as an agency to promote peace in the local community influencing school

Section II: Experiences for Social and Environmental Sensitivity

SES 2: ENVIRONMENTAL EDUCATION

Objectives of the Course:

- The Course Environmental Education aims to orient student-teachers to analyse and understand environmental concerns through the process of inquiry,critical analysis, intellectual discourse, and essential projects.

SES 3: WORK EXPERIENCE: AGRICULTURAL PRACTICES

On completion of the course, the learner will be able to:

- identify commonly spreading tree species and their importance for commonpeople,
- know the importance of traditional medicinal plants
- use qualitative seeds for sowing,
- identify important hedges creepers and weeds
- develop a nursery
- appreciate the various irrigation and drainage methods and systems

SES 3: WORK EXPERIENCE: ELECTRICITY & ELECTRONICS

On completion of the course, the learner will be able to:

- recognize and use different tools/materials/instruments.
- read the sketch/drawing of the job/project.
- develop the skills for making simple projects/models.
- acquire skill to assemble/prepare simple electric circuits.
- acquire skills to use electronic components.
- identify faults in electronic components.

SES 4: WORKING WITH THE COMMUNITY

On completion of the course, the learner will be able to:

- acquaint themselves with the factors working in the society/community i.e.,knowledge of social realities.
- develop the dignity of labour among them.
- arouse their interest in the social and economic reconstruction of the country.
- make themselves aware of the educational problems and needs of society.
- enable themselves for preparing youth for sustainable development.
- develop their personality through community service

CC 4: SCHOOLING, SOCIALIZATION & GENDER CONCERNS

Schooling Socialization and Identity

The learner will be able to

- Understand the nature & process of socialization.
- Understand parenting style & its impact.
- Understand the interface between home, community and school.
- Understand the process and determinants of identity formation.
- Understand the influence of peer groups, media, technology and globalization on identity formation.
- Understand how the school helps in the process of identity formation.
- Know the role of school in developing national, secular and humanistic identities.
- Reflect on one's aspirations & possibilities to develop a growing sense of agency as a "teacher", "professional" as well as "human being".
- Understand the relevance of education for peace-oriented values & peaceful living.
- Learn about gender issues in school & curriculum.

- Understand issues related to marginalized women.

CC 5: VISION OF EDUCATION IN INDIA: CONCERNS AND ISSUES

Course Learning Outcome

On completion of the course, the learners will be able to:

- Understand and analyse basic educational concepts, their premises and contexts that are unique to education
- Critically analyse various philosophical systems and teachings of philosophical thinkers of the east and west and their relation with education in framing aim of education, curriculum, methods of teaching etc.
- Understand the determinants of the purposes and processes of education
- Understand the role of education as an agent of social transformation.
- Reflect critically on concerns and issues of contemporary Indian schooling.
- Analyse development of education in the light of socio-economic, political and cultural development.

PC 1: PEDAGOGY OF PHYSICAL SCIENCE

Objectives of the Course:

On completion of the course, the learner will be able to:

- gain insight into the salient features of curriculum, strategy and principles ofcurriculum and science curriculum for the secondary level.
- comprehend the objectives of teaching science at secondary level.
- apply the principles of learning processes in the teaching of science.
- use effectively the teaching aids in teaching science.

PC 1 - PEDAGOGY OF ENGLISH/ HINDI/ URDU

- enrich the knowledge of English vocabulary, structures, grammar and usage and develop the ability to teach them
- improvise and use appropriate aids for teaching English
- know, compare and analyse various methods and approaches to teachingEnglish as a second language
- plan and teach lessons in English prose, poetry, grammar and compositionrelated to the courses prescribed by different State Boards of Education.
- use various techniques for the evaluation of learner achievement in English identify and analyze errors and plan and execute remedial instruction
- understand the use of language
- use multilingualism
- identity methods and approaches to teaching Urdu/ Hindi

PC 2: PEDAGOGY OF MATHEMATICS

On completion of the course, the learner will be able to:

- be conversant with the nature, values, structure and scope of Mathematics.
- interpret the principles of child development for planning lessons
- understand the principles of learning
- design appropriate activities for developing a concept.
- design mathematics laboratory.
- develop competencies in designing appropriate diagnostic and remedialtests.
- construct appropriate assessment tools for evaluating mathematics learning.

PC 2: PEDAGOGY OF BIOLOGICAL SCIENCE

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

- identify and relate approaches of teaching-learning of biological science with social relevance;
- explore the process skill in science and develop competency to organise laboratory facilities and equipment in teaching– learning of biological sciences
- construct appropriate assessment tools for evaluating learning of biologicalscience;
- develop ability to use biological science concepts for life skills; and
- develop professional competencies for teaching, and learning biological science.

PC 2: PEDAGOGY OF SOCIAL SCIENCE

On completion of the course, the learner will be able to:

- acquaint learners with an understanding of social sciences in schoolcurriculum.
- reflect on inclusive classrooms in social sciences.
- realize role of facilitator in providing additional support to learners withdifferent abilities.
- use social science corner (resource centre) to facilitate learning in socialsciences.
- reflect upon her/his experiential knowledge in the process of becoming asocial science teacher.

PC 3: LEARNING TO FUNCTION AS A TEACHER

On completion of the course the learner will be able to:

- observe the classes of regular teachers and peers and learn about the teaching-learning process and classroom management.
- develop skills in planning and teaching in an actual classroom environment.
- maintain a Reflective Journal.
- acquire skills in conducting Action Research/ Case Study

ETE 5: ART AND AESTHETIC

Course Learning Outcomes

After completion of the following course the learners will be able to:

- Comprehend the concept of different Art forms.
- Express their ideas and emotions freely related to their educational life.
- Use various art forms in teaching the content of different subjects.
- Develop creativity and insight towards aesthetic pleasure and appreciation.
- To make the learners and society aware of the rich cultural heritage of their region as well as of the whole country.

SES 5: GENDER ISSUES IN EDUCATION (GIE)

After the Completion of the course the Teacher Educators or Learners will be able to Understand or Develop;

1. Basic understanding of key concepts; gender, gender perspective, gender biases, stereotypes, women empowerment, equity and equality and other aspects related to gender.
2. The paradigm shift from women's studies to gender studies and some important landmarks regarding gender and education including its historical aspects from an Indian perspective.
3. Gender issues in schools, curriculum, textual materials in various disciplines and its intersection with caste, class, culture and religion
4. How gender, and power violence based on gender-related to their educational development.

Various Constitutional provisions for improving the present conditions of women and their educational, social, economic, and political development in the Indian scenario

SES 6: ADDRESSING SPECIAL NEEDS IN INCLUSIVE SCHOOLS (ASNIS)

After the Completion of the course the Teacher Educators or Learners will be able to Understand or Develop;

1. Knowledge of different perspectives in the area of Special education, Integrated Education and Inclusive education.
2. Reconstruct/ modify attitudes in a desirable manner towards children with special needs including their difficulties, differences and special abilities.
3. Need-based programs for all children with various abilities of prospective teachers in their practice teaching as well as future teaching.
4. Use human material resources for inclusive education as innovative strategies enriching teaching-learning such as cooperative learning, peer tutoring collaborative learning, social learning etc.
5. Lesson plans, individualized education programmes, and teaching-learning material for children with special needs.
6. Effective use of ICT for audio-visual presentations in demonstrating various classroom practices.

IV. M.Ed. I

CC-1: PHILOSOPHY AND SOCIOLOGY OF EDUCATION

After completion of the course the learners will be able to:

1. Understand nature and functions of philosophy of Education also they will be able to critically examine contributions made by prominent educational thinkers.
2. Explain and relate philosophical theories with educational practices.
3. To explore the concept, aims, and purposes of various philosophical foundations of education.
4. Develop and enhance their knowledge regarding social determinants of Education.

Comprehend the concept of change and Education also they will be able to reflect on Gender ideology, the relationship between Education

CC-2: PSYCHOLOGY OF LEARNER

After the Completion of the course the Teacher Educators or Learners will be able to;

1. Understand various learning approaches and their implications for teaching in a classroom environment.
2. Perceive motivation and its significance in the teaching-learning process of the learners.
3. Develop classroom management principles in the light of theoretical aspects of classroom management.
4. Fostering creativity and teaching skills, and their implications in teaching-learning among learners for their achievement of goals.
5. Develop skills of psychological testing and its necessity in the intervention of various psychological problems of learners.

CC3: METHODS OF EDUCATIONAL RESEARCH AND DATA ANALYSIS

After completion of the course, student-teachers will be able to:-

a. understand the meaning and process of research in education;
b. select a suitable research problem after consulting various sources;
c. understand the various methods of sampling;
d. understand the various methods and techniques in educational research; and
e. prepare a research proposal, dissertation abstract and research article.
f. interpretation of results obtained through different techniques of analysis of data.
g. appreciate the role of research methodology in the present context

SC 4(I) - ICT IN EDUCATION

After completion of the course, student-teachers will beable to:-

- understand the scope of ICT and its applications in teaching-learning.
- understand the means of ICT integration in teaching-learning.
- understand the computer components and software and hardware approach in education.
- know the instructional applications of the Internet and web resources.
- understand the process of using the application software for creating documents, databases, presentations and other media applications.
- develop awareness about the uses of computer technology in teaching-learning training and research, develop an understanding of the various aspects of data analysis software, develop various skills to use computer technology for sharing information and ideas through Blogs and Chatting groups,

SC 4 (II): INCLUSIVE EDUCATION

After completion of the course, student-teachers will be able to:-

- understand the global and national commitments towards the education of childrenwith diverse needs,
- appreciate the need for promoting inclusive practice and the roles and responsibilitiesof all concerned personnel,
- develop a critical understanding of the recommendations of various commissions andcommittees towards

teacher preparation for inclusive education,

- understand the nature of difficulties encountered by children and prepare a conducive teaching-learning environment in inclusive schools,
- analyze special education, integrated education, mainstream and inclusive educationpractices,

SC 5(I) - PEDAGOGY AND ASSESSMENT OF LANGUAGES (ENGLISH/HINDI/ URDU)

(a) After completion of the course, student-teachers will beable to:-

- understand the nature and resources of language and issues related to languageacquisition, language learning and multilingualism.
- acquire knowledge about the role, status, objectives and problems of teachingEnglish as a second language in India
- improvise and use appropriate aids for teaching English/Hindi/Urdu
- know, compare and analyse various methods and approaches to teaching English as a second language
- plan and teach lessons in English prose, poetry, grammar and composition at the Elementary level.

SC5(II) -PEDAGOGY AND ASSESSMENT OF MATHEMATICS

(a) After completion of the course, student-teachers will beable to:-

- appreciate the abstract nature of mathematics
- distinguish between science and mathematics
- distinguish between the roles of pure and applied mathematics
- develop the skill of solving real-life problems through mathematical modeling as anart
- develop the understanding of using the constructivist approach in mathematics
- develop the skill of using various methods of teaching mathematics
- develop problem-solving skills
- highlight the significance of mathematics laboratory

SC5(III) -PEDAGOGY AND ASSESSMENT OF EVS/SCIENCE

After completion of the course, student-teachers will beable to:-

- understand the nature of science as a dynamic, expanding body of knowledge and as asocial endeavour;
- understand the difference and complementarity between Science and Technology;
- understand the need to evaluate curricula and evaluate the same based ondifferent validities;
- know about and critically study innovative curricular efforts in India and abroad;
- understand the diversity of instructional materials, their role and the need forcontextualization in science education;
- appreciate the role of co-curricular activities in science education;
- understand the constructivist approach to science instruction;
- understand the role of assessment in the teaching-learning process in science

SC5A (IV): PEDAGOGY AND ASSESSMENT OF EVS/SOCIAL SCIENCES

Course Learning Outcomes

On completion of the course, the prospective teachers will be able to

- define an understanding of the meaning, nature, and scope of EVS/social sciences.
- comprehend the role of various methods and approaches of teaching EVS/social sciences
- effectively using different media, materials and resources for teaching social sciences.
- construct appropriate assessment tools for teaching-learning of social sciences and undertake the evaluation.

5B(I) - PEDAGOGY AND ASSESSMENT OF LANGUAGE

After completion of the course, student-teachers will be able to:-

- gain an understanding of the nature, functions and implications of planning forteaching language/languages

- understand the psychology of language learning
- gain an understanding of the pedagogy of language learning
- study and analyze different approaches, methods and techniques for differentiating between teaching language and teaching literature in the context of first-language andsecond language
- examine various areas of research in language education
- survey various problems with respect to language learning
- identify and reflect on factors affecting language policy.

5B(II) - PEDAGOGY AND ASSESSMENT OF MATHEMATICS

After completion of the course, student-teachers will be able to:-

- appreciate the abstract nature of mathematics
- distinguish between science and mathematics
- distinguish between the roles of pure and applied mathematics
- develop the skill of solving real-life problems through mathematical modelling as anart
- develop the understanding of using constructivist approach in mathematics
- develop the skill of using various methods of teaching mathematics
- develop problem-solving skills
- highlight the significance of mathematics laboratory

5B(iii) PEDAGOGY AND ASSESSMENT OF SCIENCE

After completion of the course, student-teachers will be ableto:-

- understand the nature of science as a dynamic, expanding body of knowledge and as asocial endeavour;
- understand the difference and complementarity between Science and Technology;
- understand the need to evaluate curricula and evaluate the same based ondifferent validities;
- know about and critically study innovative curricular efforts in India and abroad;
- understand the diversity of instructional materials, their role and the need for contextualization in science education;
- appreciate the role of co-curricular activities in science education

5B(iv) - PEDAGOGY AND ASSESSMENT OF SOCIAL SCIENCE

After completion of the course, student-teachers will be able to:-

a. Develop an understanding of the meaning, nature, and scope of social sciences andsocial science education
b. to find out the distinction and overlap between social sciences, humanities and liberalarts
c. Understand the role of various methods and approaches to teaching social sciences
d. Employ appropriate for a transaction of social science curriculum.
e. Effectively use different media, materials and resources for teaching social sciences
f. Construct appropriate assessment tools for teaching-learning of social sciences and undertake an evaluation

CC 6: QUALITATIVE EDUCATIONAL RESEARCH

Course Learning Outcomes: After completion of the course, student-teachers will be able to:

1. Understand the concept, Characteristics & Themes of Qualitative Research.

2. Examine different types of qualitative research and their characteristics.

3. Examine the concept of Qualitative Research.

4. Develop a tool which allows for the evaluation and data collection of Qualitative Research.

5. Design a framework or outline of Qualitative Research. Investigate appropriate methods of data analysis.

6. Explain the processes of Qualitative Research Explain how to plan the research project of Qualitative Research.

7. Understand the difference among different approaches of qualitative research.

CC 7: QUANTITATIVE EDUCATIONAL RESEARCH

After completion of the course, the learner will be able to:-

1. Understand the meaning, concept, scope and relevance of quantitative educational research.
2. Explore educational sources and develop a tool to collect data for quantitative educational research.
3. Evaluate different research methods, especially those used in quantitative research and understand how to carry out action research.
4. Identify and choose the proper research design based on research objectives and requirements.
5. Analyse and interpret the research data after employing suitable statistical technique/s.

CC 8: PSYCHOLOGY OF LEARNING

After completion of the course, student-teachers will be able to:-

- develop an understanding of the learning process and its implications for teaching;
- develop the concept that motivation (intrinsic and extrinsic) is basic to all teaching-learning processes;
- examine the implications of learning principles for classroom management; and
- develop skills in the interpretation of data gathered under 'sessional work'.

SC 9EE (I): PREPARATION OF ELEMENTARY TEACHER: PRE-SERVICE AND IN-SERVICE

After completion of the course, student-teachers will beable to:-

- gain insight into the need and objectives of elementary teacher education;
- understand the development of elementary teacher education in post-independentIndia;
- gain insight into the existing pre-service teacher education programmes and theirorganizational aspects;
- develop an understanding of the needs, importance and existing practices of in-serviceeducation of teachers and functionaries associated with elementary education;
- develop an understanding of the status of elementary teachers and the problems and issuesrelated to professional growth; and
- reflect on the trends of research in elementary teacher education

10EE (II): PLANNING AND MANAGEMENT OF ELEMENTARY EDUCATION

After completion of the course, student-teachers will be ableto:-

1. concept and process of planning and management, and the emerging thrust areas inelementary education;
2. understand about different agencies working in the field of elementary educationand the current projects in elementary education;
3. develop the necessary competencies for planning and management, and forformulating strategies to meet emerging issues in elementary education; and
4. develop research insight in the field of planning and management of elementaryeducation.

SC 9 SE(I) PREPARATION OF SECONDARY AND SENIOR SECONDARYTEACHERS: PRE-SERVICE AND IN-SERVICE

After completion of the course, student-teachers will be able to:-

- understand the nature-scope and systems of secondary and senior secondary education
- understand the problem and challenges related to secondary and senior secondaryeducation
- understand the interventions to solve the problems and issues related to alternativeschooling at secondary schools.

- identify the problems issues of secondary school teachers
- Visualize the impact of the Rights of children to free and Compulsory Education Act,2009 to the universalization of Secondary Education
- Understand the nature of education for multiple intelligence
- Understand the modalities of secondary education management information system
- examine the nature and objectives of teacher education
- critically examine the growth and development of teacher education in the country
- appraise the existing teacher education curriculum from the standpoint of its relevanceto the demands of the present-day school curriculum

SC 10 SE (I) CURRICULUM AND EVALUATION AT SECONDARY AND SENIOR SECONDARY LEVEL

Course Learning Outcomes- After completion of the course, student-teachers will be able to:
1. Develop an understanding of underlying principles of curriculum development and evaluation at the Secondary and Senior Secondary Stages

2. Understands the role of ICT in a transaction.

3. Develop research insight for curriculum development in Secondary and Senior Secondary education.

4. Understand the nature and uses of different types of tools and techniques of evaluation in education and acquire the skill to construct the achievement and diagnostic tests.

5. Administer the tests and interpret the best scores and its implication.

6. To learners and parents undertake action research and interpret the results.