INVERTIS UNIVERSITY BAREILLY

SEMESTER - V

LOGICO MATHEMATICS EDUCATION	
Course Code: BELD501	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Nature of Children's Mathematical Thinking

- Theories of Piaget, Bruner, and Vygotsky
- Intuitive mathematics
- Mental mathematics
- Cultural differences and specificities in mathematical thinking
- Nature of children's logico-mathematical thinking

Unit II: Language and Mathematics

- Language of mathematics
- The role of language in mathematical comprehension and communication
- Language barriers in learning mathematics

Unit III: Pedagogical Considerations and Learning Theory

- Critical study of pedagogic considerations with reference to learning theory and practice
- Readiness for learning mathematics
- Consolidating mental arithmetic
- Circular reactions (Piaget's theory)
- Zone of Proximal Development (Vygotsky's theory)
- Organizing and structuring learning tasks
- Group vs. individual activities in the classroom
- Drill, memorization, and algorithmization in mathematical learning

Unit IV: Mathematics in Schools and Content-Specific Pedagogy

- Mathematics in the context of schools: textbooks, curricula, and classroom practices
- Conceptual and procedural aspects of mathematics
- Research on children's learning in specific areas of mathematics
- Errors, feedback, testing, and evaluation in mathematics education
- The hidden curriculum and its impact on mathematical learning
- Addressing mathematics phobia and failure
- Content-specific pedagogy: number, place value, fractions, decimals, and the role of readymade kits

Suggested Reading:

1. Clements, D. H., & Battista, M. T. (1992). Geometry and spatial reasoning. In P. A. Grouws (Ed.), Handbook of research on mathematics teaching and learning (pp. 420-464). Reston, VA: National Council of Teachers of Mathematics.
2. IGNOU. (2001). Learning mathematics, LMT-01. New Delhi: Indira Gandhi National Open University.
3. National Council of Teachers of Mathematics. (1986). Communications in mathematics, K-12 and beyond. NCTM Yearbook. Reston, VA: National Council of Teachers of Mathematics.
4. National Council of Teachers of Mathematics. (1989). Assessment standards for school mathematics. Reston, VA: National Council of Teachers of Mathematics.
5. National Council of Teachers of Mathematics. (1989). Professional standards for teaching mathematics. Reston, VA: National Council of Teachers of Mathematics.
6. National Council of Teachers of Mathematics. (1993). Curriculum and evaluation standards for school mathematics. Reston, VA: National Council of Teachers of Mathematics.

EDUCATIONAL ADMINISTRATION AND MANAGEMENT	
Course Code: BELD502	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Introduction to Educational Administration

- Concept, Scope, and Functions of Educational Administration
- Principles of Educational Administration
- Role of Educational Administrators: Headmasters, Principals, and Teachers
- Educational Administration and its Relationship with Educational Management

Unit II: Organizational Structure of Education

- Organizational Structures in Schools: Centralized vs. Decentralized
- Types of Educational Institutions and their Administration: Public and Private
- Roles and Responsibilities of Different Stakeholders in Educational Institutions
- Decision-Making in Educational Institutions: Participative and Autocratic

Unit III: Policy, Planning, and Leadership in Education

- Educational Policies and their Impact on School Administration
- Planning in Education: Concept, Types, and Importance
- Leadership Styles in Educational Administration
- Challenges of Leadership in School Administration

Unit IV: Financial Management and Legal Aspects in Education

- Budgeting and Financial Management in Schools
- Sources of Funding for Schools: Government and Private Sector
- Legal Framework in Education: Rights and Responsibilities
- Educational Laws and Regulations for Elementary Education

Suggested Reading:

1. Aggarwal, J. C. (2012). Educational administration: A new perspective. Vikas Publishing House.
2. Bhatnagar, R. (2010). Education administration and management. Anmol Publications.
3. Das, R. C. (2013). Educational administration and management. Deep & Deep Publications.
4. Hossain, G., & Rahman, M. (2015). Educational leadership and administration. Wisdom Press.
5. Naik, J. P., & Syed, N. (2007). Educational administration and management: A case study of Indian education system. Himalaya Publishing House.
6. Saxena, A. (2009). Educational administration and leadership: Theory and practice. Pearson Education.
7. Sharma, R. S. (2012). Principles and practice of educational administration. Atlantic Publishers & Distributors.
8. Sharma, S., & Gupta, P. (2014). School administration and management. Diamond Publications.
9. Yadav, M. (2011). Educational planning and administration. Pearson Education.

GENERAL HINDI	
Course Code: BELD503	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

पाठ्यचर्या की अंतर्वस्तु

इकाई I: भाषा की आधारभूत संरचना एवं उच्चारण तथा ध्वनि -व्यवस्था

- हिन्दी भाषा की समस्त ध्वनियाँ, संयुक्ताक्षरों, संयुक्त व्यंजनों, अनुस्वार एवं चन्द्रबिन्दु में अंतर।
- विलोम शब्द।
- पर्यायवाची शब्द।
- समास, समास विग्रह एवं समास के भेद।

इकाई II: भाषा शिक्षण

- भाषा अध्यापन के सिद्धांत।
- भाषा के कार्य तथा उपकरण के रूप में इसका उपयोग।
- व्याकरण और मौखिक क्षमता संबंधी वाले गद्यांश (तार्किक या साहित्यिक या कथा या वैज्ञानिक)।

इकाई III: भाषा कौशल एवं भाषा शिक्षण सहायक सामग्री

- भाषा की समझ और दक्षता का मूल्यांकन: श्रवण, भाषण, वाचन और लेखन।
- शिक्षण-अधिगम सामग्री: पाठ्यपुस्तक, बहु-मीडिया सामग्री, कक्षा के बहुभाषी संसाधन।
- उपचारात्मक शिक्षण।

पाठ्य हेतु सुझाव:

- वर्मा, ओंकार नाथ. (2020). सामान्य हिन्दी, अरिहन्त पब्लिकेशन लिमिटेड. इंडिया.
- तिवारी, डॉ. भोलानाथ (2011). हिन्दी भाषा की संरचना, वाणी प्रकाशन.
- श्रीवास्तव, रविंद्रनाथ (2015). हिन्दी भाषा का समाजशास्त्र. राधाकृष्ण प्रकाशन.
- प्रकाश, आर., शर्मा, एस., एवं सरलता (2022) हिन्दी भाषा संरचना और भाषा विज्ञान, अन्नुग्या बुक्स.

MATHEMATICS III	
Course Code: BELD523	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Trigonometry and Complex Functions

- Complex functions
- Separation into real and imaginary parts

Unit II: Trigonometric and Logarithmic Functions

- Exponential functions
- Direct and inverse trigonometric functions
- Hyperbolic functions
- Logarithmic functions
- Gregory's series
- Summation of series

Unit III: Matrix Theory

- Symmetric and skew-symmetric matrices
- Hermitian and skew-Hermitian matrices
- Orthogonal matrices
- Unitary matrices
- Triangular matrices
- Diagonal matrices
- Rank of a matrix

Unit IV: Statistical Techniques

- Analysis of Variance (ANOVA)
- Chi-square test

Suggested Reading:

1. Goyal, D., & Gupta, P. (n.d.). Matrix theory. Student's Friends and Company.
2. Vasistha, A. R., & Sharma, J. N. (n.d.). Differential geometry. Kedarnath Ramnath.
3. Willmore, T. J. (2004). Differential geometry. Oxford University Press.

POLITICAL SCIENCE III	
Course Code: BELD529	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Political Obligation and Utilitarianism

- Political Obligation
  - Meaning, Nature, Theories of Political Obligation: Divine Right Theory, Prescriptive Theory, Consent Theory, Idealistic Theory, and Utilitarian Theory
  - Limits of Political Obligation
  - Green's View
  - Laski's View
- Utilitarianism
  - Meaning and Basic Tenets of Utilitarianism
  - Bentham's Contribution
  - J.S. Mill's Contribution

Unit II: Natural Law, Rights, and Theories of Punishment

- Natural Law and Natural Rights
  - Meaning of Natural Law
  - Concept of Natural Rights
- Punishment
  - Meaning and Different Forms of Punishment
  - Theories of Punishment: Deterrent Theory, Retributive Theory, Preventive Theory, Reformative Theory, and Expiatory Theory

Unit III: Liberalism, Socialism, and Marxism

- Liberalism: Principles, Classical Liberalism, Modern Liberalism
- Socialism: Meaning, Definition, Merits, and Demerits; Types of Socialism
- Marxism: Basic Concepts and Contributions

Unit IV: Main Currents of Indian Political Thought

- Gandhiji's Concepts of Sarvodaya, Satyagraha, and the State
- Nehru's Contribution to Modern Indian Society
- Indian Socialism: Contributions of Narendra Dev and Jayaprakash Narayan

Suggested Reading:

1. Barker, E. (1951). Principles of Social and Political Theory. Oxford University Press.
2. Gauba, O. P. (2009). An Introduction to Political Theory. Macmillan Publishers India Ltd.
3. Gilbert, M. (2006). A Theory of Political Obligation: Membership, Commitment, and the Bonds of Society. Oxford University Press.
4. Horton, J. (2010). Political Obligation. Palgrave Macmillan.
5. Johri, J. C. (1987). Contemporary Political Theory. Sterling Publishers Private Limited.
6. Verma, V. P. (1964). Modern Indian Political Thought. Lakshmi Narain Agarwal.

PEDAGOGY OF ENGLISH I	
Course Code: BELD532	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Language Acquisition

- Nature, Concept, and Importance of Language: Understanding the nature, concept, functions, and significance of language. Exploring first, second, and foreign language acquisition.
- Active and Passive Language Skills: Development of reading, writing, listening, and speaking skills.
- Forms and Diversity in English: Understanding different forms of English, linguistic diversity, and its impact on English. Organization of sounds, including vowels and consonant sounds.
- Linguistic Components: Introduction to phonetics, morphology, and syntax.
- Role of English in India: Examining English as a colonial language, second language, and global language, including its significance in the age of globalization.
- Principles of Teaching English: Psychological, linguistic, and pedagogical principles for teaching English as a second language.

Unit II: Teaching Models, Strategies, Teaching-Learning Materials, and Aids

- Teaching Models: Definition, elements, and types of teaching models, including behavior modification and constructivist approaches.
- Instructional Techniques: Microteaching, simulated teaching, team teaching, Personalized Learning Approach (PLA), project-based learning, and cooperative learning.
- Teaching-Learning Resources: Utilizing print media, magazines, newspapers, comic strips, and ICT resources such as audio-visual aids, OHP, LCD, computers, CALL programs, radio, TV, and films.
- Co-curricular Activities: Role play, simulation, speeches, games, language laboratories, multimedia resources, and planning co-curricular activities like discussions, debates, workshops, and seminars.

Unit III: Language Assessment and Evaluation

- Comprehensive Evaluation: Concepts and techniques of continuous and comprehensive evaluation, including oral tests, cloze tests, self-evaluation, peer evaluation, and group evaluation.
- Assessment Techniques: Use of observation, student-teacher profiles, and evaluation procedures for assessing students' performance, activities, and projects.
- Rubrics and Portfolios: Group assessment, self and peer assessment, assessment of worksheets, student journals, and portfolio assessment. Teacher reflections in the assessment process.

Suggested Reading:

1. Balasubramaniam, T. (1981). A textbook of English phonetics for Indian students. Mumbai, India: Macmillan India Ltd.
2. Bhandari, C. S., & Others. (1966). Teaching of English: A handbook for teachers. New Delhi, India: Orient Longmans.
3. Bhatia, K. K. (2006). Teaching and learning English as a foreign language. New Delhi, India: Kalyani Publishers.
4. Bhatia, K. K., & Kaur, N. (2011). Teaching and learning English. New Delhi, India: Kalyani Publishers.

PEDAGOGY OF PHYSICAL SCIENCE I	
Course Code: BELD534	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Foundations of Science Education

- Meaning and Nature of Science
- Correlation of Science with Other Subjects
- Aims and Objectives of Teaching Physical Science
- Taxonomy of Educational Objectives
- Writing Instructional Objectives in Behavioral Terms

Unit II: Methods of Teaching Science at Elementary Level

- Project Method, Problem-Solving Method, Heuristic Method, Brainstorming Method
- Buzz groups, snowballing, discussion, and group learning
- Debates, recitations and storytelling, clay modelling and toy making
- Role play, training games for learners, asking and framing questions including higher order thinking questions.

Unit III: Planning in Science Teaching

- Unit Planning and Lesson Planning: Basic Elements, Characteristics, and Significance
- Approaches to Lesson Planning
- RCEM Approach to Lesson Planning

Suggested Reading:

1. Heiss, E. D., Obourn, E. S., & Hoffman, C. W. (1950). Modern science teaching. New York: Macmillan.
2. Kuhn, D. J. (1972). Science education in a changing society. Science Education, 56(3), 379-386.
3. Kulshrestha, S. P. (1988). Teaching of science. Meerut: R. Lall Book Depot.
4. Sharma, R. C. (1981). Modern science teaching. Delhi: Dhanpat Rai & Sons

PEDAGOGY OF SOCIAL STUDIES I	
Course Code: BELD541	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Social Science as an Integrated Area of Study

- Meaning, definition, need, and nature of social sciences
- Branches of social sciences and their distinct features
- Contribution of social sciences to society
- Major similarities and differences between sciences and social sciences
- Importance of social sciences in fostering national and international understanding
- Key concepts in social sciences: race, gender, class, culture, technology

Unit II: Knowledge and Curriculum of Social Sciences

- Knowledge: Concepts of Pedagogical Content Knowledge (PCK), Pedagogical Knowledge (PK), Technological Knowledge (TK), and Pedagogical Content Technological Knowledge (PCTK), with implications for social science teaching
- Curriculum: Role of social sciences in the school curriculum; curriculum structure for social sciences at upper primary and secondary levels
- Pedagogical Planning: Considerations of curriculum content and learner context, including socio-cultural and developmental aspects, with attention to special needs

Unit III: Preparing and Planning for Teaching Social Sciences

- Preparation for teaching social sciences: principles, aims, and objectives of teaching at various educational levels; applications of Bloom's Taxonomy; teaching approaches in social sciences
- Resources and equipment for effective social science instruction
- Lesson Planning: Importance, essential components, and methods for preparing lesson plans
- Use of audiovisual aids in social science teaching

Suggested Reading:

1. Agarwal, J.C. (1993). The teaching of social studies: A practical approach. New Delhi: Vikas Publishing House.
2. Batra, P. (Ed.). (2010). Social science learning in schools: Perspectives and challenges. New Delhi: Sage.
3. Dhamija, N. (1993). Multimedia approaches in teaching social studies. New Delhi: Harman Publishing House.
4. George, A., & Madan, A. (2009). Teaching social science in schools: NCERT's new textbook. New Delhi: Sage.
5. Khan, S. U. (1998). History teaching: Problems, perspectives, and prospects. New Delhi: Heera Publications.
6. Kochhar, S.K. (1998). The teaching of social studies. New Delhi: Sterling Publishers Pvt. Ltd.
7. NCERT. (2006). Position paper: National focus group on teaching of social sciences. New Delhi: NCERT.

Course Outline

Unit I: Nature and Scope of Mathematics Education

- Nature of Mathematics- abstractness, precision, brevity, language, and symbolism.
- Structure of Mathematics (axioms, postulates, undefined terms, defined terms, theorems, proofs).
- The role of intuition and logic in mathematical thinking, Axiomatic Nature of mathematics, Language of mathematics.
- How mathematical ideas grow- concrete to abstract, particular to general, hierarchical structures.
- Values of Mathematics: cultural, disciplinary, moral, social, and utilitarian values.
- Scope of Mathematics, correlation of mathematics with other subjects.
- Aims and objectives of teaching and learning Mathematics at middle stage.
- General and specific learning objective according to Bloom's Taxonomy with Anderson revision, writing the objective in behaviouristic terms. Meaning and characteristics of instructional objective.

Unit II: Pedagogical Concerns of Mathematics

- Content categories in Mathematics: (Facts, Concepts, Illustrations, Generalization).
- Content analysis in Mathematics, concept mapping in Mathematics (taking sample contents from Arithmetic, Algebra, Geometry).
- Approaches of Teaching Mathematics: Constructivist, Experiential Learning, Interdisciplinary and Multidisciplinary Approaches.
- Methods of Teaching Mathematics: Teacher centric- Lecture cum Demonstration, Discussion, Inductive-Deductive, Learner centric - Activity Based, Hands on Activity, Play-Way method, Group-Centric: Problem-Solving, Project Based, Inquiry based, Collaborative and Cooperative Learning, Problem-Solving, STEM and STEAM, Blended Learning.

Unit III: Teaching Learning Aids / Materials

- Teaching Learning aids/materials: concept & definition.
- Role and importance of teaching learning material in Mathematics classroom.
- Types of teaching learning aids/ materials for Mathematics Teaching: charts, models, overhead projector, films with their specific use and limitations non-print and digital media for offline/ online classroom teaching learning, reflective journals, charts, 2-D and 3-D models, games, toys, flash cards, worksheets, multimedia etc.
- Creation of visual aids-charts, models, graphs; usage of graphical tools- calculator, logo, Geo-Gebra, sketch pad, ready reckoners; selection and integration of tools in relation to content and learning environment.

Suggested Reading:

1. Butler, C. H., & Wren, F. L. (1965). The teaching of secondary mathematics. London: McGraw-Hill Book Company.
2. Cooney, T. J., Davis, E. J., & Henderson, K. B. (1975). Dynamics of teaching secondary school mathematics. Boston: Houghton Mifflin.
3. Copeland, R. W. (1974). How children learn mathematics: Teaching implications of Piaget's research. New York: Macmillan.
4. Kapfer, M. B. (1971). Behavioral objectives in curriculum development: Selected readings and bibliography. Englewood Cliffs, NJ: Educational Technology Publications.
5. Kapur, J. N. (1970). Suggested experiments in mathematics. New Delhi: Arya Book Depot.
6. Mager, R. F. (1997). Preparing instructional objectives. Atlanta, GA: Center for Effective Performance.
7. National Council of Educational Research and Training (NCERT). (2006). A textbook of content-cum-methodology of teaching mathematics. New Delhi: NCERT.
8. Polya, G. (1945). How to solve it: A new aspect of mathematical method. Garden City, NY: Doubleday Anchor Books.
9. Rouse Ball, W. W. (1911). Mathematical recreations and essays. London: Macmillan & Co.

MICRO TEACHING	
Course Code: BELD551	**Credit:** 02 (L-0, T-0, P-2)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Module 1: Introduction to Micro Teaching

- Definition and importance of micro teaching in teacher training.
- Objectives and components of micro teaching.
- Overview of the micro teaching cycle: planning, teaching, observing, and reflecting.

Module 2: Teaching Skills and Techniques

- Identification and explanation of essential teaching skills (Set Induction, Explanation, Illustration, Questioning, Probing, Black Board Writing and Reinforcement).
- Demonstrating specific skills through role-play and peer teaching.
- Skill practice: students will practice selected skills in pairs or small groups.

Module 3: Planning and Conducting Micro Teaching Sessions

- Designing micro teaching lessons: selecting content, objectives, and appropriate teaching aids.
- Conducting micro teaching sessions (individual presentations of 10-15 minutes).
- Observing peers and providing constructive feedback based on set criteria.

Module 4: Reflection and Improvement

- Analyzing feedback received from peers and instructors.
- Reflective practice: developing an action plan for improvement based on feedback.
- Final presentation: demonstrating improved teaching skills in a second micro teaching session.

Assessment

- **Micro Teaching Sessions (50%)**: Evaluation of two micro teaching sessions, including planning and delivery.
- **Peer Feedback (20%)**: Participation in peer observations and feedback sessions.
- **Reflection Report (30%)**: A reflective report on the micro teaching experience, including feedback analysis and personal growth.
- **Internal Assessment:** Preparation of Micro Lesson Plans and Reflection Report of all internal components.
- **External Assessment:** Appearing in external viva and demonstration of a skill along with all Micro Lesson Plans and Reflection Reports.

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SEMESTER - VI

KNOWLEDGE AND CURRICULUM	
Course Code: BELD601	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Understanding Knowledge

- Concept, nature, and types of knowledge: empirical, rational, intuitive, and authority-based
- Sources and validation of knowledge
- Knowledge construction: Constructivist and Social Constructivist perspectives
- Interrelationship between knowledge, skills, and values in education

Unit II: Curriculum: Concept and Types

- Definition, characteristics, and functions of curriculum
- Types of curriculum: formal, informal, hidden, and null curriculum
- Curriculum as a product, process, and praxis
- National and state-level curriculum frameworks: Overview and critical appraisal

Unit III: Curriculum Development and Design

- Principles and models of curriculum design: Tyler's model, Taba's model, and Social Reconstruction model
- Steps in curriculum development: needs assessment, setting objectives, content selection, and organization
- Curriculum evaluation and reform: formative and summative evaluation, feedback mechanisms
- Influences on curriculum development: socio-cultural, political, economic, and technological factors

Unit IV: Curriculum and Pedagogy in Practice

- Integrating knowledge and pedagogy in curriculum: Pedagogical Content Knowledge (PCK) and its application
- Inclusive curriculum: Addressing diversity, special needs, gender, and socio-economic contexts
- Teachers as curriculum developers: role, challenges, and professional identity
- Case studies of curriculum reforms in India (e.g., NCF 2005, NEP 2020.

Suggested Reading:

1. Krishna Kumar (2005). Political agenda of education: A study of colonialist and nationalist ideas. New Delhi: Sage.
2. NCERT. (2005). National curriculum framework 2005. New Delhi: NCERT.
3. NCERT. (2006). Position paper on curriculum, syllabus and textbooks. New Delhi: NCERT.
4. Taba, H. (1962). Curriculum development: Theory and practice. New York: Harcourt Brace.
5. Tyler, R. W. (1949). Basic principles of curriculum and instruction. Chicago: University of Chicago Press.
6. Yadav, M. S. (2006). Exploring curriculum for elementary education. New Delhi: NCERT.

Course Outline

Unit I: Understanding Gender as a Social Construct

- Concept of gender and sex: Biological and sociological perspectives
- Gender as a social construct: Processes of gender socialization in family, media, and school
- Intersectionality: Gender, caste, class, religion, and ethnicity
- Key concepts in gender studies: Patriarchy, masculinity, femininity, and gender roles

Unit II: Gender and Schooling

- Gender biases in school curriculum, textbooks, and teaching-learning processes
- Impact of gender on access to education, retention, and achievement
- Gender dynamics in teacher-student and peer relationships
- Role of schools in perpetuating or challenging gender stereotypes and biases

Unit III: Policies and Programs for Gender Equality in Education

- National and international initiatives for gender equality in education: CEDAW, SDG 4 & 5, NEP 2020
- Overview of Indian policies for girls' education and gender inclusivity in schools
- Government schemes and programs: Beti Bachao Beti Padhao, KGBV (Kasturba Gandhi Balika Vidyalaya), and scholarships for girls
- Role of NGOs and civil society organizations in promoting gender equality in education

Unit IV: Creating Gender-Inclusive Schools

- Developing a gender-sensitive pedagogy and curriculum
- Teacher's role in fostering gender inclusivity: Attitudes, language, and teaching practices
- Addressing issues of safety, discrimination, and sexual harassment in schools
- Designing gender-inclusive school activities and co-curricular programs

Suggested Reading:

1. Bhattacharjee, N. (1999). Through the prism of gender: Anthropological insights. New Delhi: Sage.
2. Bhasin, K. (2000). What is patriarchy? New Delhi: Women Unlimited.
3. Chhachhi, A. (1991). Gender in the making of the Indian nation-state. New Delhi: Kali for Women.
4. Govinda, R. (2002). India education report: A profile of basic education. New Delhi: Oxford University Press.
5. NCERT. (2006). Gender issues in education. New Delhi: NCERT.
6. UNESCO. (2003). Gender and education for all: The leap to equality. Paris: UNESCO.

Course Outline

Unit I: Introduction to Teaching and Learning

- Meaning and Definition of Teaching and Learning
- Teaching as a Profession: Roles and Responsibilities of a Teacher
- Concept of Learning: Meaning, Types, and Theories of Learning
- Theories of Teaching: Behaviourist, Constructivist, and Social Learning Theories
- Teaching Models and Approaches: Lecture, Demonstration, and Interactive Teaching
- Factors Affecting Teaching and Learning: Individual Differences, Motivation, Environment

Unit II: Curriculum and Instructional Planning

- Curriculum Development: Meaning, Objectives, and Components
- Types of Curriculum: Formal, Informal, Hidden Curriculum
- Instructional Planning: Importance and Types of Planning (Unit Planning, Lesson Planning)
- Characteristics of a Good Lesson Plan
- Approaches to Lesson Planning: RCEM, Bloom's Taxonomy in Planning
- Writing Instructional Objectives: Behavioral Terms and Learning Outcomes
- Innovative Instructional Strategies: Cooperative Learning, Experiential Learning

Unit III: Teaching Methods and Techniques

- Traditional Teaching Methods: Lecture, Demonstration, and Direct Instruction
- Child-Centered Methods: Project Method, Play-way Method, Activity-based Learning
- Constructivist Approaches: Inquiry-based, Problem-solving, and Collaborative Learning
- Use of Multimedia in Teaching: Interactive Whiteboards, Digital Storytelling, and EdTech Tools
- Differentiated Instruction: Techniques for addressing diverse learning needs
- Classroom Management Techniques: Creating an Inclusive and Disciplined Learning Environment

Unit IV: Assessment and Evaluation in Teaching

- Meaning and Purpose of Assessment and Evaluation
- Types of Assessment: Formative, Summative, Diagnostic, and Dynamic Assessment
- Tools and Techniques for Assessment: Written Tests, Observation, Project Work, Peer and Self-assessment
- Bloom's Taxonomy and Its Application in Assessment
- Assessment for Learning: Feedback and its Role in Learning
- Evaluation Methods for Elementary Education: Continuous and Comprehensive Evaluation (CCE)
- Action Research in Teaching: Importance and Steps

Suggested Reading:

1. Bhatia, K. K. (2012). Principles of Teaching. Delhi: Doaba House.
2. Bloom, B. S. (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. New York: Longmans, Green.
3. Mangal, S. K. (2002). Teaching of Physical and Life Science. New Delhi: Prentice Hall of India.
4. Sharma, R. C. (2008). Modern Teaching of Science. New Delhi: Dhanpat Rai & Sons.
5. Vaidya, N. (2006). Curriculum Development in Education. New Delhi: Vikas Publishing House.
6. Yadav, M. (2000). Teaching Methods and Techniques. New Delhi: Anmol Publications.

MATHEMATICS IV	
Course Code: BELD623	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Demographic Methods

- Sources of Demographic Data:
  - Census
  - Registers
  - Ad hoc surveys
  - Hospital records
- Demographic Profile of Indian Census
- Rates and Ratios of Vital Events
- Measurement of Mortality and Life Tables:
  - Crude death rate
  - Infant mortality rate
  - Death rate by cause
  - Standardized death rate

Unit II: Time Tabling Rates & Ratios

- Complete Life Table and Its Features
- Mortality Rate and Probability of Dying
- Use of Survival Tables
- Measurement of Fertility:
  - Crude birth rate
  - General fertility rate
  - Total fertility rate
  - Gross reproduction rate
  - Net reproduction rate

Unit III: Statistical Methods

- Index Numbers:
  - Definition and application of index numbers
  - Price, quantity, and value relatives
  - Link and chain relatives
  - Problems in the computation of index numbers
- Use of Averages
- Simple and Weighted Aggregative and Average Methods
- Index Number Formulas:
  - Laspeyres, Paasche, Marshall-Edgeworth, and Fisher’s index numbers
  - Time and factor reversal tests of index numbers
  - Consumer Price Index

Unit IV: Networking

- Introduction to Decision Theory
- Types of Decision Theory
- Inventory Control
- Critical Path Method (CPM)
- Program Evaluation and Review Technique (PERT)

Suggested Reading:

1. Gupta, S. C. (Year). Mathematical Statistics. S. Chand & Co.
2. Hira, D. S. (Year). Operation Research. S. Chand & Co.
3. Kapoor, J. N., & Saxena, H. C. (Year). Statistics. S. Chand & Co.
4. Taha, H. A. (Year). Operation Research.
5. Winston, W. L. (Year). Operation Research. Cengage Learning.

POLITICAL SCIENCE IV	
Course Code: BELD629	**Credit:** 04 (L-3, T-1, P-0)
Contact Hours: 60	**MM:** 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Formation and Evolution of Representative Institutions

- Government of India Act, 1858
- Indian Council Act, 1861
- Indian Council Act, 1892
- Indian Council Act, 1909

Unit II: Pathway to Responsible Government

- Government of India Act, 1919
- Round Table Conferences
- Simon Commission
- Government of India Act, 1935

Unit III: Rise of Indian Nationalism and the Indian National Congress

- Birth and growth of Nationalism in India
- Indian National Congress
- Moderates and Extremists

Unit IV: Major Milestones in the Indian National Movement and Independence

- Non-Cooperation Movement
- Civil Disobedience Movement
- Quit India Movement
- Independence Act, 1947
- Overview of the Indian Constitution: Preamble, sources, salient features, Fundamental Rights and Duties, and Directive Principles of State Policy

Suggested Reading:

1. Basu, D. D. (2013). Constitutional Law of India (21st ed.). Lexis Nexis.
2. Basu, D. D. (2013). Shorter Constitution of India. Lexis Nexis.
3. Bhatnagar, S. (1978). Rural Local Government in India. Light & Life Publishers.
4. Chandra, B. (2019). History of Modern India. Orient Blackswan.
5. Johri, J. C. (1987). Contemporary Political Theory. Sterling Publisher Private Limited.
6. Maheshwari, S. (1979). Local Government in India. Sang

PEDAGOGY OF ENGLISH II	
Course Code: BELD632	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Lesson Planning and Teaching-Learning Materials

- The need and purpose of designing a lesson: Understanding its importance in effective language teaching.
- Aims and objectives of lesson design: Setting clear goals for teaching and learning.
- Teaching of prose, poetry, grammar, and composition: Approaches for each.
- Teaching aids: Use of print media, reading materials (magazines, newspapers, comic strips, etc.), and ICT tools (audio-visual aids, CALL programs, radio, TV, films).
- Planning co-curricular activities: Organizing discussions, debates, workshops, and seminars.
- Language laboratory: Integration and importance of language labs in enhancing language skills.

Unit II: Teaching Language Skills, Approaches, and Methods

- Listening skill: Techniques to develop effective listening skills in learners.
- Speaking skill: Addressing pronunciation issues and strategies to overcome them.
- Reading skill: Approaches for loud reading, silent reading, intensive and extensive reading. Techniques like scanning and skimming.
- Study skills: How to teach vocabulary, reference skills (using dictionaries and encyclopedias), and essentials of effective communication.
- Approaches and methods: Grammar-Translation method, Direct method, Bilingual and Multilingual approaches, Inductive and Deductive methods, Communicative Language Teaching (CLT), and the Eclectic approach.

Unit III: Development and Analysis of Syllabus and Textual Materials

- Understanding the relationship between curriculum, syllabus, and textbook.
- Development of activities and tasks for English language teaching.
- Moving away from rote learning to constructivist teaching practices.
- Teacher as a researcher: Developing meaningful strategies based on learner needs and analyzing texts for language instruction.

Suggested Reading:

1. Balasubramaniam, T. (1981). A textbook of English phonetics for Indian students. Mumbai: Macmillan India Ltd.
2. Bhandari, C. S., et al. (1966). Teaching of English: A handbook for teachers. New Delhi: Orient Longmans.
3. Bhatia, K. K. (2006). Teaching and learning English as a foreign language. New Delhi: Kalyani Publishers.
4. Bhatia, K. K., & Kaur, N. (2011). Teaching and learning English as a foreign language. New Delhi: Kalyani Publishers.

PEDAGOGY OF PHYSICAL SCIENCE II	
Course Code: BELD634	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Approaches and Strategies for Learning Physical Science

- Constructivist Approach
- 5 E Learning Model of Constructivist Approach
- Collaborative Learning Approach
- Problem Solving Approach
- Concept Mapping
- Experiential Learning
- Use of Improvised Teaching Apparatus in Teaching of Physical Science

Unit II: Curriculum in Physical Science

- Principles of Curriculum Development
- Approaches of Curriculum Construction
- Subject Centered, Behaviorist and Constructivist Approach of Curriculum Development
- Curriculum Framework, Curriculum and Syllabus
- History of Curriculum Frameworks
- Recommendations of NCF 2005 on Science Curriculum
- Textbooks and Reference Books in Physical Science

Unit III: Assessment and Evaluation in Physical Science

- Measurement, Assessment and Evaluation
- Concept of Assessment of Learning, Assessment for Learning, Assessment as Learning
- Tools and Techniques of Assessment
- Achievement Test and Diagnostic Tests
- Norm-referenced and Criterion-referenced Tests
- Standardized and Teacher Made Tests

Suggested Reading:

1. Heiss, E. D., Obourn, E. S., & Hoffman, C. W. (1950). Modern science teaching. New York: Macmillan.
2. Kuhn, D. J. (1972). Science education in a changing society. Science Education, 56(3), 379-386.
3. Kulshrestha, S. P. (1988). Teaching of science. Meerut: R. Lall Book Depot.
4. Sharma, R. C. (1981). Modern science teaching. Delhi: Dhanpat Rai & Sons

PEDAGOGY OF SOCIAL STUDIES II	
Course Code: BELD641	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Methods and Techniques of Teaching

- Principles and Maxims of Classroom Teaching of Social Science
- Teaching Methods: Meaning, definition. Modern and traditional methods of teaching social science.
- Techniques of Teaching: Meaning, definition. Different techniques of teaching social science.

Unit II: Planning for Teaching Social Sciences

- Importance of Planning in Teaching: Analyzing relevant materials, including videos on instructional planning; Critical review of videos on teaching social sciences; Observation of classroom practices of social science teachers and reflection upon planning and implementation of teaching in social sciences.
- Approaches to Lesson Planning in Social Sciences: Herbartian approach, Bloom's evaluation approach, Constructivist approach, and 5Es lesson plan model in social sciences.
- Using Taxonomy of Instructional Objectives: Setting learning objectives; Writing learning objectives—behavioral and non-behavioral—based on selected chapters from social science textbooks.
- Designing and Sequencing of Learning Activities: Preparation of lesson plans in social sciences.

Unit III: Assessment and Evaluation in Social Sciences

- Meaning and Importance of Measurement and Evaluation in Social Sciences
- Objectives of Evaluation in Social Sciences
- Tools and Techniques of Evaluation in Social Sciences
- Meaning and Need of Formative and Summative Evaluation
- Meaning and Significance of Comprehensive and Continuous Evaluation in Social Sciences
- Construction of Achievement Test in Social Sciences: Blueprint, item analysis and try-out, standardization of tests—objectivity, reliability, validity, norms, diagnostic test, and remedial teaching.
- Cumulative Grade Point Average (CGPA) and Choice Based Credit System (CBCS)

Suggested Reading:

1. Agarwal, J.C. (1993). The teaching of social studies: A practical approach. Vikas Publishing House.
2. Batra, P. (Ed.) (2010). Social science learning in schools: Perspectives and challenges. Sage.
3. Dhamija, N. (1993). Multimedia approaches in teaching social studies. Harman Publishing House.
4. George, A., & Madan, A. (2009). Teaching social science in schools: NCERT's new

textbook. Sage.
5. Gilby, T. (1953). Between community and society. Longmans, Green and Co.
6. Khan, S. U. (1998). History teaching: Problems, perspectives, and prospects. Heera Publications.
7. Kochhar, S.K. (1998). The teaching of social studies. Sterling Publishers Pvt. Ltd.
8. National Council of Educational Research and Training (NCERT). (2006). Position paper: National focus group on teaching of social sciences. NCERT.
9. Venkateswara, R.L. (2005). Methods of teaching rural sociology. Discovery Publishing House.

PEDAGOGY OF MATHEMATICS II	
Course Code: BELD642	**Credit:** 02 (L-2, T-0, P-0)
Contact Hours: 30	**MM:** 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Learning Resources in Mathematics

- Uses of learning resources, free learning resources for Mathematics.
- Non-print and digital resources – radio, TV, websites, animations, audios, videos, images, simulations, digital repository, AR, VR and AI based digital resources and OERs utility in Mathematics teaching and learning.
- Mathematics Laboratory - Design, Setting and Function, Need for and importance of virtual laboratories.
- Mathematics kit, Mathematics-Club, Mathematics Fairs, Mathematics Exhibitions, Educational Parks, Excursions, Community Resources and Pooling of Resources.
- National Mathematics Talent Search, Mathematics Olympiad.

Unit II: Textbook Analysis and Planning for Teaching Mathematics

- Mathematics textbooks: characteristics and functions of a good Mathematics textbook
- Evaluation of Mathematics textbooks: Physical aspects, concept load, Presentation styles- diagrams, graphs, boxes, anecdotes, interesting clarity and precision, activities, practice, and enrichment.
- Understanding the textbook, analyzing subject matter from the pedagogical content knowledge (PCK) perspective, selecting the content, identifying facts, concepts, analyzing, organizing, and planning appropriate learning strategies and learning experiences.
- Designing learning experiences in Mathematics: yearly plan, unit plan, lesson plan, elaborating specific steps of each type of plan.
- Different models of lesson plan appropriate for middle stage Mathematics teaching.

Unit III: Assessment and Evaluation

- Assessment and Evaluation of learning Mathematics: difference between assessment and evaluation. Assessment based on learning outcomes, strategies for continuous assessment, school-based assessment, qualitative assessment: formative and summative assessment, formal, informal, and 360-degree assessment, self and peer assessment. (assessment of learning, assessment for learning and assessment as learning).
- Performance assessment (non-testing methods): assessment of group activities, field observations, recording and reporting, creating platform and portfolio management, assessment of lab skills, assignments, projects, and presentations.
- Standardized test, Achievement test and development of blueprint, Feedback mechanism in teaching learning.
- Creation of rubric, portfolios, criterion reference test, norm referenced test.
- Construction, administration, scoring, interpretation of a unit test and providing feedback to learners.

Suggested Reading:

1. Butler, M., & Wren, M. (Year). The teaching of secondary mathematics. McGraw-Hill Book Company.
2. Cooney, T. J., & others. (Year). Dynamics of teaching secondary school mathematics. Houghton Mifflin.
3. NCERT. (Year). A textbook of content-cum-methodology of teaching mathematics. National Council of Educational Research and Training.
4. Polya, G. (Year). How to solve it. Doubleday.
5. Rouse Ball, W. W. (Year). Mathematical recreations and essays. Macmillan & Co.
6. Servas, W., & Varga, T. (Year). Teaching school mathematics: UNESCO source book. UNESCO.
7. Sharma, C. S., & others. (2003). Textbook of mathematics. Arya Book Depot.
8. Siddiqui, M. H. (Year). Teaching of mathematics. APH Publishing Corporation.

SIMULATION TEACHING	
Course Code: BELD651	**Credit:** 04 (L-0, T-0, P-4)
Contact Hours: 60	**MM:** 100 (Int.: 40 + Ext.: 60)

Course Outline

Practical Engagement

- Preparation and presentation of 10 Simulation teaching lesson plans (minimum 5 for each teaching subject).
- Simulation Teaching exercises with feedback from instructors and peers.
- Group reflection sessions to discuss experiences, challenges, and strategies for improvement.

Assessment

- **Participation and Engagement (30%):** Active participation in simulation sessions, role-playing, and group discussions.
- **Lesson Planning and Preparation (20%):** Developing and submitting lesson plans for simulation scenarios.
- **Practical Simulation Performance (30%):** Performance in simulated teaching sessions, evaluated on communication, classroom management, and engagement.
- **Reflection Report (20%):** Submission of a reflection report, analyzing personal strengths and areas for improvement based on simulation experience.
- **Internal Assessment:** Preparation of Simulation Lesson Plans and Reflection Report of all internal components.
- **External Assessment:** Appearing in external viva and demonstration of a Simulation Lesson Plan with portfolio of prepared Lesson Plans (during internal sessions) and Reflection Reports.

Note: For successful completion of the course participation in all activities of practicum is compulsory.

SCHOOL OBSERVATION II	
Course Code: BELD671	**Credit:** 02 (L-0, T-0, P-0)
Contact Hours: Two Weeks	**MM:** 50 (Int.: 15 + Ext.: 35)

The course will enable the pupil-teachers to delve into the intricacies of school operations, teaching practices, and student dynamics through structured observation. It aims to enhance students' analytical and evaluative skills, enabling them to connect theoretical concepts with real-world educational settings. By engaging in advanced observation techniques, detailed classroom analysis, and administrative insights, students will develop a deeper understanding of effective teaching, school management, and professional growth.

Course Outline

- **Pre-Observation Preparation**
  - Orientation
    - Introduction to the course objectives and expectations
    - Overview of observation techniques and tools
    - Developing advanced techniques for systematic observation of classroom and school environments.

- **School Observation**
  - Classroom Observation
    - Observing different classes across various grades
    - Focus on teaching methods, classroom management, and student interactions
    - Analysis of teaching aids and instructional strategies.
  - Observation of Teacher Roles and Responsibilities
    - Observing teacher-student interactions
    - Understanding lesson planning and execution
    - Understanding diverse learning needs and adaptations made by teachers
    - Analyzing assessment and feedback methods
  - Observing School Culture and Environment
    - Observing and Participation in school routines and extracurricular activities
    - Understanding the role of administrative staff
    - Assessing the safety and inclusiveness of the school environment
    - Exploring the socio-cultural context of the school and its impact on teaching and learning
    - Understanding school policies, schedules, and administrative procedures

- **Post-Observation Analysis**
  - Reflection and Reporting
    - Preparing a comprehensive report that includes detailed observations, analysis, and professional insights.
    - Reflecting on key observations and learning outcomes
  - Discussions and Feedback Session
    - Discussing challenges and best practices observed
    - Presenting the report and engaging in discussions on how observations inform professional growth.
    - Identifying strategies for applying observational insights in future teaching and school leadership roles.

Assessment

- **Observation Reports**
  - Detailed reports on classroom and school observations (50%)
- **Reflection Essays**
  - Written reflections on key learnings and personal growth (30%)
- **Participation and Engagement**
  - Active participation in discussions and feedback sessions (20%)

Course Outline:

1. Participation in all activities of School Observation (Pre-observation Preparation, During Observation and Post-observation Analysis) as mentioned in course outline.
2. Recording of minimum 20 lessons (10 for each teaching subject).
3. Maintenance of record of school observation (Observation Reports and Reflective Essays) with brief report about school.
4. Viva-voce at the end of semester.

Note: For successful completion of the course, Participation in all activities of School Observation is compulsory.