



**Scheme of Instruction & Syllabi
of
B.El.Ed.**

(Effective from Session 2023-24)

**Faculty of Education
Invertis University, Bareilly**
Invertis Village,
Bareilly – Lucknow Road, NH – 24,
Bareilly (U. P) - 243123
India

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SEMESTER I

S. No.	Course Code	Course Title	Course Type	Course Classification	L	T	P	Int.	Ext.	Total	Credit
1	BELD101	BASICS OF EDUCATION	CORE	THEORY	3	1	0	30	70	100	4
2	BELD102	LANGUAGE AND COMMUNICATION	CORE	THEORY	2	0	0	15	35	50	2
3	BELD103	HUMAN GROWTH AND DEVELOPMENT	CORE	THEORY	3	1	0	30	70	100	4
4	BELD104	NATURE OF LANGUAGE	CORE	THEORY	3	1	0	30	70	100	4
5	BELD105	CORE MATHEMATICS	CORE	THEORY	3	1	0	30	70	100	4
6	BELD151	PSYCHOLOGY PRACTICAL	CORE	PRACTICAL	0	0	2	15	35	50	2
TOTAL					14	4	2	150	350	500	20

SEMESTER II

S. No.	Course Code	Course Title	Course Type	Course Classification	L	T	P	Int.	Ext.	Total	Credit
1	BELD201	COGNITION, LEARNING AND TEACHING	CORE	THEORY	3	1	0	30	70	100	4
2	BELD202	LANGUAGE ACROSS THE CURRICULUM	CORE	THEORY	3	1	0	30	70	100	4
3	BELD203	READING AND REFLECTING ON TEXT	CORE	THEORY	2	0	0	15	35	50	2
4	BELD204	CORE SOCIAL SCIENCE	CORE	THEORY	3	1	0	30	70	100	4
5	BELD205	CORE SCIENCE	CORE	THEORY	3	1	0	30	70	100	4
6	BELD251	SCOUTS AND GUIDES CAMP	CORE	PRACTICAL	0	0	2	15	35	50	2
TOTAL					14	4	2	150	350	500	20





SEMESTER - I

BASICS OF EDUCATION	
Course Code: BELD101	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Meaning and Concept of Education

- Meaning of Education: Etymological Meaning; Narrow and Broader Meaning
- Education as Process and Product
- Meaning of Education according to Indian & Western Thinkers
- Analytical Concept of Education
- Education as: Natural or Social Process
- Normative and Cognitive Aspects of Education

Unit II: Processes, Modes and Goals of Education

- Education as an: Activity or a Process
- Educational Processes: Training, Instruction and Learning by Experience, Understanding of Principles, Logical and Critical Thinking
- Modes of Education: Informal, Formal and Non-Formal Education
- Bases of Educational Goals
- Nature of Educational Goals

Unit III: Teacher and Learner

- Teaching as a Professional Activity
- Teacher and Curriculum; Teacher and Society
- Teacher Autonomy: Meaning and Characteristics
- Child as a Learner
- Socialization and Learning
- Learner Autonomy: Meaning and Characteristics
- Individual Autonomy and Collective Responsibility

Unit IV: Knowledge and Education

- Understanding Knowledge: Meaning and Definitions
- Ways of Knowing
- Forms of Knowledge
- Facets of Knowledge
- Distinction between 'Body of Knowledge' and 'construction of knowledge'
- Process of Knowledge Construction

Suggested Reading:

1. Aurobindo. S. 1990. On Education. Aurobindo Ashram, Pondicherry.
2. Dewey, J. 1916. Democracy and Education, The Macmillan Company, New York.
3. Dewey, J. 2010. Essays in Experimental Logic, Aakar Books, Delhi.
4. Esch, E. 1996. Promoting learner autonomy: Criteria for the selection of appropriate methods. In R. Pemberton, S.L. Edward, & H.D. Pierson (Eds.), Taking Control: Autonomy in Language Learning (pp. 34-38). Hong Kong University Press, Hong Kong.
5. Fosnot, C.T. 2005. Constructivism: Theory, Perspectives and Practice. Columbia University Press.
6. Good, C.V. (Ed.) 1973. Dictionary of Education (3rd edition). McGraw Hill, Michigan.
7. Iida, A. 2009. Teacher Autonomy and Professional Teacher Development: Exploring the Necessities for Developing Teacher Autonomy in EFL Japanese Contexts. Asian EFL Journal, vol. 35, article 3.
8. Kriplani, K. 1980. Rabindranath Tagore: A Biography, Viswabharathi, Shantiniketan.
9. Krishnamurthi, J. 1994. Education and the Significance of Life. Krishnamurthi Foundation, India.
10. Mani, R.S. 1996. Educational Ideas and Ideals of Gandhi and Tagore (A Comparative Study). New Book Society of India, New Delhi.
11. National Council of Educational Research and Training. 2005. National Curriculum Framework, NCERT, New Delhi.
12. NCERT (2014). Basics in Education. Available at: https://ncert.nic.in/division/der/pdf/basic_in_education.pdf
13. Ravi, S.S. (2021). Philosophical and Sociological Bases of Education, Prentice Hall Indi, New Delhi.
14. Tobin, Kenneth. 1993. The Practice of Constructivism in Science Education. Lawrence Erlbaum Associates, Hillsdale, NJ.

LANGUAGE AND COMMUNICATION

Course Code: BELD102

Credit: 02 (L-2, T-0, P-0)

Contact Hours: 30

MM: 50 (Int.: 15 + Ext.: 35)

Course Outline

Unit I: Introduction

- Meaning and Concept of Communication
- Theories of Communication
- Types and Modes of Communication
- Effective Communication and Barriers in Communication
- Verbal and Non-Verbal Communication
- Intra-personal, Inter-personal and Group communication

Unit II: Listening and Speaking Skills

- Meaning of Listening
- Art of Good Listening
- Types of Listening
- Listening Skills: Deep Listening, Full Listening, Critical Listening, Therapeutic Listening
- Speaking Skills: Dialogue, Group Discussion, Interview, Public Speech, Role Play/ Extempore Presentations

Unit III: Reading and Writing Skills

- Reading Skills: Close Reading, Comprehension, Analysis and Interpretation, Summary Paraphrasing, Translation (From Indian Language to English and Vice-Versa)
- Writing Skills: Making Notes, Documenting, Report Writing, Writing Letters (Job Applications, CV and Resume), Academic Writing, Writing a Proposal

Suggested Reading:

1. Delhi University. (2008). Business English, Pearson Education, India.
2. Department of English, Delhi University (2006). Fluency in English - Part II, Oxford University Press, India.
3. Kumar, S.P. (2012). Language, Literature and Creativity, Orient Blackswan Pvt. Ltd., New Delhi.
4. Mishra, G., Kaul, R, & Biswas, B. (2016). Language Through Literature, Primus Books, New Delhi.

HUMAN GROWTH AND DEVELOPMENT	
Course Code: BELD103	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Concept, Issues and Theories of Human Development

- Meaning, and definition of growth & development
- Need of study of growth and development; Principles of Development
- Stages of Development: Infancy, Early Childhood, Later Childhood and Adolescence
- Factors influencing growth and development
- Methods of studying development; Concepts of socialization
- Education and acculturation in the context of development
- Erik Erikson's Psychosocial Theory; Piaget's Cognitive Theory; Arnold Gesell's Maturation Theory; Bandura's Social Learning Theory; Bronfenbrenner's Ecological Systems Theory; Vygotsky's Socio-cultural Theory; Noam Chomsky's Processing Theory

Unit II: Infancy and Childhood

- Importance of conception; pre-natal development and birth
- Characteristics of each stage of development with reference to Physical, Perceptual, Language, Intellectual, Social and Emotional Development of Pre-School and Elementary School Child
- Characteristics and developmental task of Pre-School and Elementary School Child
- Moral Attitudes, behavior, development of self-identity, self-concept, gender roles, play, interests and activities of the elementary school child
- Role of media in the life of children with special reference to use of internet (Social networking sites, E-mails, Browsing)

Unit III: Family, School and Community

- Family- Meaning and functions; Family as a social system, Different styles of child rearing; Socioeconomic and Ethnic variation in Child Rearing; Cultural Influences of family
- School- Meaning and Functions; School transition in early and later childhood Teacher-Student interaction; Peer relation and its importance; Cultural value of peer groups
- Community- Meaning, Functions and role in Education

Unit IV: Education of Exceptional Children

- Meaning, Definition and Types of Exceptional Children
- Education of Gifted Child, Backward Child and Creative Child
- Education of Slow Learners/Under-Achievers and Emotionally-Culturally-Socially disadvantaged children

Suggested Reading:

1. Agarwal, J.C. (1981). Essentials of Educational Psychology, Delhi: Doaba Books.
2. Agrawal, J. C. (1994). Essentials of Educational Psychology. New Delhi: Vikas Publishing House Pvt. Ltd
3. Barnes, P. (ed). (1995). Personal, Social and Emotional Development of Children, Blackwell: Oxford
4. Berk, Laura E. (1996). Child Development, Prentice Hall of India: New Delhi
5. Chauhan, S.S. (2001). Advanced educational psychology. New Delhi: Vikas Publishing House.
6. Clarke Stewart, A. and S. Fireman. Child Development: Infancy through Adolescence, John - Wiley and Sons, UK.
7. Crain, Williams C. (1980). Theories of Development: Concepts and Applications, Prentice Hall of India: New Delhi
8. Gardner, H. (1978). Developmental Psychology: An Introduction, Little brown & Co.: Boston
9. Gauvian, M. and M. Cole. (eds.) (1997). Readings on the Development of Children. W.H. Freeman: New York.
10. Hetherington, E.M. and R.D. Parke. (1993). Child Psychology: A Contemporary View Point, McGraw Hill: Auckland, UK.
11. Kakkar, S. (1980). The Inner World, Oxford University Press; New Delhi
12. Sarswathi, T.S. (ed.) (1999). Culture, Socialization and Human Development: Theory, Research and Applications in India, Sage: New Delhi.

NATURE OF LANGUAGE	
Course Code: BELD104	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Language and Aspects of Linguistic Behaviour

- Meaning & concept of language
- Characteristics of language; Function & Role of language
- Forms of language
- Meaning, Process and types of communication.
- Human and non-human communication; Defining features of a human system of communication
- language and mind; Language and society; Language as rule governed behavior and linguistic variability; speech and writing

Unit II: Linguistic Systems

- The organization of sounds; the structures of sentences
- Basics of universal grammar
- Nature and structure of meaning
- Basic concept of phonology; syntax and semantics (to be taught through practicum)

Unit III: Text & Linguistic Systems and Multilingualism

- Organization of text discourse structure, oral and written
- Nature of class room discourse;
- Structure of a story, poem, essay etc., Points of entry into texts to teach them more effectively (to be taught through practicum)

Unit IV: Multilingualism

- Multilingualism; Using multilingual resource of a classroom (to be taught through practicum)

Suggested Reading:

5. Agnihotri, R.K. and Khan A.L. (eds.) English grammar in context, Ratna Sagar: Delhi, 1996.
6. Agnihotri, R.K. Sociolinguistic aspect of multilingual classrooms, paper presented at the 1st international seminar on languages in Education, Cape Town, South Africa, January 15-20, 1996
7. Aitchison, J. linguistics, Hodder and Stoughton: London, 1978. Chap.1.5
8. Brumfit, C.J. and J.T. Roberts, Language and language Teaching, Batsford Academic and Educational (H): London, 1983.
9. Hudson, R.A. Sociolinguistics, Cambridge University press: Cambridge, 1980, Chapter 1 and 2.
7. IGNOU, CTE-02 Certificate Program in Teaching of English as a Second Language: The Structure of English, IGNOU: New Delhi, 1995.
10. IGNOU, EEG-02 Elective Course in English: The Structure of Modern English, Blocks 1 and 2: Phonetics and Phonology; Blocks 3 and 4: Morphology; Block 5, 6 and 7: syntax: IGNOU: New Delhi, 1989.

CORE MATHEMATICS	
Course Code: BELD105	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Number and Measurement

- Counting and place value; Arithmetic operations;
- Approximation; Estimation
- Fractions and decimals
- Concept and measurement of length, mass/weight, Area, Volume and Time

Unit II: Space and Shape

- Symmetry and Pattern – Properties of two- and three-dimensional objects e.g., symmetries, projection, perspective, tessellation, closest packing, etc.

Unit III: Algebra

- Number Patterns - forming and solving simple linear equations – other mathematical investigations and puzzles

Unit IV: Practical Arithmetic and Handling Data

- Collecting, representing and interpreting data
- Using elementary statistical techniques
- Timetables and time tabling
- Flow charts; Percentage; Ratio and proportion; Interest; Discount; Tax

[It is envisaged that the various concepts and operations will be reconstructed through activities and problems, using concrete materials as often from the kitchen and from mathematical kits, to arrive at solutions or conduct investigations. This would be followed by reflective discussions on the concepts, solutions, results and the methods used]

Suggested Reading:

1. Bolt, Brian. Mathematical Activities, A Resource Book for Teachers, Cambridge University Press: Cambridge, 1982.
2. Bolt Brian and David Hobbs. 101 Mathematical Projects, Cambridge University Press: New York, 1990.
3. Burns, M. The I Hate Mathematics Book, Cambridge University Press: Cambridge, 1987.
4. Furth, H.G. and S.H. Wachs. Thinking Goes to School, Oxford University Press: New York, 1975.
5. Gary L. Musser and Willam, F. Burger. Mathematics, for Elementary Teachers: A Contemporary Approach, Macmillan: UK, 1994, Third Edition.
6. Hold, M. and Z. Dienes. Let's Play Mathematics, Penguin: Harmondsworth, 1973.
7. IGNOU. Teaching of Primary School Mathematics, UGNOU: New Delhi, 1991.
8. IGNOU. Learning Mathematics, IGNOU: New Delhi, 2001.

PSYCHOLOGY PRACTICAL	
Course Code: BELD151	Credit: 02 (L-0, T-0, P-2)
Contact Hours: 30	MM: 50 (Int.: 15 + Ext.: 35)

Course Outline

Standardized psychological tests pertaining to the following will be selected and taught to student-teachers:

- Memory
- Transfer of learning
- Intelligence
- Personality
- Habit formation in Adolescence
- Adjustment

Note: Pupil teacher will make a practical notebook of Psychology Practical, detailing introduction of tests, administration procedure, test results and their interpretation, which along with oral test on various tests will be assessed by teacher(s) designated by HOD for internal evaluation and subsequent evaluation by external examiner for external evaluation.



SEMESTER - II

COGNITION, LEARNING AND TEACHING	
Course Code: BELD201	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Process of Knowing and Learning

- Concept and meaning of Education, Goals of Education
- Learning: Meaning, nature, characteristics, principles & types
- Factors affecting Learning: maturation, attention, interest, fatigue, school related factors
- Motivation: definition, types and techniques, Maslow's theory

Unit II: Approaches to Learning

- Concept, theories and educational applicability of following approaches to learning
- Behaviorist Approach: Thorndike's theory of Trial & Error; Pavlov's theory of Classical Conditioning; Skinner's theory of Operant Conditioning
- Humanistic Approach: Roger's Social Learning Theory
- Cognitive Approach: Bruner's theory of Discovery Learning & Kurt-Levin's Field theory
- Constructivism: cognitive & social constructivism (concept & features)

Unit III: Differences in Individual Learners

- Intra and Inter Individual differences: meaning, dimensions and factors
- Intelligence: Nature, Theories- Thurston's Theory, Guilford's Three-Dimensional theory
- (S.I. Model), Gardner's theory of Multiple intelligence and assessment
- Personality: meaning and types, Alport's Trait theory.
- Freud's Psychoanalytical theory
- Creativity: concept, factors and nurturing creativity

Unit IV: Classroom Dynamics and Role of teacher

- Development of inter personal relationships, use of socio-metric techniques,
- Teacher as a leader of group and facilitator of learning
- Teacher's accountability
- Professional ethics and code of conduct for teachers in formal schools

Unit V: Teaching as a Complex Activity

- Concept of Teaching: meaning, definition, characteristics, forms
- Levels of Teaching: memory, understanding, reflective
- Basic teaching skills and competencies
- Strategies and techniques of teaching

Suggested Reading:

1. Bower and Hilliard (5th ed.) (1986) Theories of Learning New Delhi: Prentice Hall
2. Bruner, J.S. (1967) A Study of Thinking, New York: John Wiley
3. Chand, Tara and Parkas', Ravi (1997) Advanced Educational Psychology New Delhi: Kanishka Publications
4. Chauhan, S.S. (6th ed. Revised) (1998) Advanced Educational Psychology New Delhi: Vikas Publishing House
5. Kudus, C.L. and Tutu, D.N. (2000) Educational Psychology. New Delhi: Sterling Publishers Pvt. Ltd
6. Man gal, S.K. (1998) - Advanced Educational Psychology, Prentice Hall of India, New Delhi. New York
7. Kuppuswamy, B. (1998) Advanced Educational Psychology New Delhi Sterling Publishers
8. Dr. A.B. Bhatnagar (2016), Learning and Teaching, R. Lal Publication

LANGUAGE ACROSS THE CURRICULUM

Course Code: BELD202

Credit: 04 (L-3, T-1, P-0)

Contact Hours: 60

MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Language and Society

- Relationship between language and society: Identity, power and discrimination
- Multilingualism: Different status of Indian classroom language, dialects vs standard language

Unit II: Language Development and Acquisition

- Theories of language development and its implementation in teaching, psychological basis of language
- Language acquisition stages, language and thought
- Language acquisition and cognitive development, language in different contexts

Unit III: Classroom Discourse

- Classroom discourse: meaning, nature and medium, importance and elements of oral language
- Strategies for using oral language: Discussion and questioning as tools for learning, debates, seminars
- Role of teacher in classroom discourse

Unit IV: Reading, Listening and Speaking

- Need and importance, Types of reading: Skimming and scanning, strategies for effective reading: loud and silent readings
- Analyzing text of different nature
- Developing listening skills, articulation of different sounds, stress, rhythm, tonal variations and intonation, Speech defects – slurring, stuttering and stammering and role of teacher in their resolution

Unit V: Developing Writing Skills

- Need and importance of writing, making reading-writing connections
- Strategies of writing for children – note taking, summarizing, analyzing children's writings, text book analysis

Suggested Reading:

1. Agnihotri, R. K. (1995). Multilingualism as a classroom resource. In K. Heugh, A. Seigruhn & Pluddemann (Eds.) Multilingual Education for South Africa. Heinemann Educational Books
2. Areekkuzhiyil, S. and Dogra, S. (2016). Language across the curriculum. Neelkamal Publications
3. Krishna Kumari, S. (2018). Language Across the Curriculum. Agrawal Publications
4. Sinha, S. (2000). Acquiring literacy in schools. Seminar, 38-42

READING AND REFLECTING ON TEXT	
Course Code: BELD203	Credit: 02 (L-2, T-0, P-0)
Contact Hours: 30	MM: 50 (Int.: 15 + Ext.: 35)

Course Outline

Objective: To prepare teachers as reflective practitioners, provide opportunities to the student teachers to read the given texts and then to critically examine the ideas presented in the texts and organize debates/discussions around the ideas.

Transaction Mode: A response-based approach will be followed where students are regarded as active meaning makers whose personal experience will be tapped for the interpretation of the text. Students as readers and writers will participate in the constructive reading- writing process. Open forums will accompany the discussion of texts.

Unit I: Understanding Reading

- Reading: Meaning and Purpose
- Process or Stages of Reading
- Type of Texts in School Curriculum
- Barriers to reading
- Reading disabilities
- Five stages in the Development of Reading
- Reading for Comprehension (Skimming, Scanning, Intensive and Extensive Reading)
- Levels of Comprehension

Unit II: Critical and Reflective Reading

- Reflection: Meaning and Concept
- Research that supports reflective practice: Kolb's learning cycle, Gibbs' reflective cycle, Schön 'reflection-in-action' and 'reflection-on-action'
- Reflection in reading
- Strategies for students to become reflective readers
- Benefits of reflective practice

Unit III: Practicing Academic Reading

- Reading leading to Note-Making
- Research Notes, Pattern Notes (spider gram, table, flowchart and tree diagram)
- Assessing academic reading
- **Activities for Practicing Reflective Reading (Following activities are to be conducted in class involving student-teachers):**
 - Maintaining a reflective journal by student-teachers
 - **Activity 1:** The Story of the Eagle and the Chicken
Source: <https://mecschoo.co.za/wp-content/uploads/2020/04/The-fable-of-eagle-and-the-chicken-2.pdf>

Guidelines for conducting the activity:

- The story may be read out to the students without the title and the final message

- After listening to the story, each student has to provide a title and a moral of the story
 - The students may be asked to think of a similar situation in their own lives or in the life of anyone else whom they know
 - Each student speaks about his experience
 - The written work of each student may be submitted.
- **Activity 2:** National Education Policy 2020
Source:
https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Guidelines for conducting the activity:
Following parts of the policy may be used for the activity:
- i. The Vision of Policy
 - ii. Teacher Education (point 15.4)
 - iii. Structure of School Education
- Each student is asked to read the text individually and identify the topic sentence of each paragraph
 - They are instructed to make notes of each section of the text
 - Students are asked to write the summary of each section
 - The written work should be submitted.

Suggested Reading:

1. Ahmadi, M.R. et al (2016). The importance of metacognitive reading strategy awareness in reading comprehension. English language teaching. Retrieved from https://www.researchgate.net/publication/273989234_The_Importance_of_Metacognitive_Reading_Strategy_Awareness_in_Reading_Comprehension
2. Angelo T.A., & Cross, K.P. (1993). Classroom assessment techniques: A Handbook for college teachers. San Francisco: Jossey-Bass.
3. Banks, J.A., & Banks, C.A. (Eds.) (2004). Handbook of research on multicultural education. San Francisco: Jossey-Bass
4. IGNOU (2016). Reading and Reflecting on Texts. Director, School of Education, IGNOU, New Delhi
5. Pandey, L. (2015). On the Threshold of Reading: A Compilation of Articles on Reading. NCERT: New Delhi.
6. Sreekanth, Y. (2021). Reading and Reflecting on Texts: A Source Book for Secondary Teacher Education. IUCTE (RIE Mysore): NCERT

CORE SOCIAL SCIENCE	
Course Code: BELD204	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: Nature of Social Science

- Data, method and evidence to be discussed in the context of history, Geography, civics, economics and sociology.
- Role of social science discipline in the learner's development.
- Significance of perspective and context in the study of social sciences

Unit II: Relationship between human experience and the growth of institution

- Special reference to monarchy, aristocracy, imperialism, fascism, nationalism, democracy, and citizenship

Unit III: Relationship between human life, space and resources

- Special reference to movement from a subsistent economy to a surplus economy, demography and the distribution of wealth in society, spatial interaction in Indian society

Unit IV: Study of the relationship and interaction of people in group

- Human rights, human duty, culture and cultural lag, social stratification and social change.

Unit V: Relationship between human life and environment

- Introduction of Solar system in the special context to earth, human environment, wild life and eco-system, population growth and its problems, major rivers and mountain series

Suggested Reading:

1. Text Books of Social Science of NCERT and SCERT

CORE SCIENCE	
Course Code: BELD205	Credit: 04 (L-3, T-1, P-0)
Contact Hours: 60	MM: 100 (Int.: 30 + Ext.: 70)

Course Outline

Unit I: The Universe, Solar system and exploring space

- Exploring space - Solar System, planets, asteroids, comets and meteors; Earth origin, evolution and structure stars, Constellations, milky way, galaxy, structure of universe and its theories.
- Brief history of space explorations: Elementary ideas about space crafts
- Different types of artificial satellites and their orbits.
- Uses of artificial satellites in Communication
- Weather forecasting, remote sensing and space exploration

Unit II: Source of Energy

- Renewable and Non-renewable sources, Renewable sources: Solar energy (Solar Cooker, Solar water heater, Solar Cell); Wind energy,
- Non-renewable source: Fossil fuel (Coal, Petroleum and Natural gas).
- Conditions for Combustion choice of a good Fuel, Fuel efficiency, nuclear fusion and nuclear fission, chain reaction, nuclear reactor

Unit III: Metals and non-metals

- Ores and minerals, metallurgy, Enrichment of ores, extraction of metal from ores
- Refinement and purification of metal with reference to Iron and aluminum
- Activity series of metals, general properties and corrosion of metals, Alloys, Components, properties and uses of steel; stainless steel, Brass.
- Non-metals: Importance and general. Properties, method of preparation of hydrogen, properties and its uses. Manufacturing of ammonia (Only reactions). Its properties and uses

Unit IV: Life Processes

- Nutrition, Modes of nutrition: Autotrophic, heterotrophic, Parasitic and saprophytes.
- Nutrition of plants: - Photosynthesis factors affecting the photosynthesis:
- Nutrition in animals: Amoeba grasshopper, digestive system of human.
- Respiration: -Respiration and Breathing Respiration in Plants and animals type of respiration:
- Aerobic and anaerobic respiration; Respiration through Skin, gills, trachea lungs. (Earthworm, Fishes, Grasshopper and Human). Knowledge of structure and function of respiratory system of human.

Unit V: Reproduction, growth, Heredity and Evolution

- Reproduction and growth: Types of Reproduction
- Asexual: Fission budding, regeneration vegetative propagation in plants, cutting, grafting and layering,
- Parthenogenesis. Sexual reproduction and its significance Reproductive parts of plants,



pollination and Fertilization.

- Human reproductive system
- Mental and physical change during human development.

Suggested Reading:

1. Discussion in School Science: Learning Through Talking
2. Singh, Sardar (2012), General Science, Agra: Sahitya Publication
3. Writing for Learning Science. NCERT, (2006) Position Paper on Science Education, NCERT: New Delhi

SCOUTS AND GUIDES CAMP	
Course Code: BELD251	Credit: 02 (L-0, T-0, P-2)
Contact Hours: 30	MM: 50 (Int.: 15 + Ext.: 35)

Course Outline

- Have brief information of the origin of Scouting and Guiding along with definition, purpose principles and method of the Bharat Scouts and Guides.
- Information about the Scout Promise, Law & Motto.
- Knowledge about the Scout and Guide Sign, Salute and left-hand shake and be able to demonstrate.
- Know the parts of Scout Uniform and how to wear it correctly.
- Know the composition and significance of the National Flag, the Bharat Scouts & Guides Flag and the World Scout Flag and Flag Etiquette.
- Sing correctly National Anthem, BSG Prayer and BSG Flag Song. Know about the composer, duration and meaning of the song.

Scouts and Guides Camp will have three components:

1. Participation in all activities of Scout and Guide Camp organized by the University
2. Report writing for Scout and Guide Camp
3. Participation in Viva voce at the end of semester.

Note: For successful completion of the course, all three components are compulsory.