

Program: B.Sc.(Hons.) Agriculture
Semester: First
Course: Fundamentals of Agronomy
Course Code: 13A.109

L	T	P	C
3	0	2	4

Course Objective:

- To get acquainted with basic concepts i.e., sowing, tillage, crop density, intercultural operations, etc. of agronomy.
- To understand soil-plant-water relationships, water use efficiency and scheduling of irrigation.
- To make students participate in all agricultural operations like ploughing, puddling, sowing, application of fertilizers, harvesting etc.

Unit I:

Agronomy and its scope, seeds and sowing, tillage and tilth, crop density and geometry, Crop nutrition, manures and fertilizers, nutrient use efficiency

Unit II:

Water resources, soil-plant-water relationship, crop water requirement, water use efficiency, irrigation-scheduling criteria and methods, quality of irrigation water, logging.

Unit III:

Weeds- importance, classification, crop weed competition, concepts of weed management-principles and methods, herbicides- classification, selectivity and resistance, allelopathy.

Unit IV:

Growth and development of crops, factors affecting growth and development, plant ideotypes, crop rotation and its principles, adaptation and distribution of crops, crop management technologies in problematic areas, harvesting and threshing of crops.

Practical:

1. Identification of crops, seeds, fertilizers, pesticides and tillage implements
2. Study of agro-climatic zones of India
3. Identification of weeds in crops
4. Methods of herbicide and fertilizer application
5. Study of yield contributing characters and yield estimation
6. Seed germination and viability test
7. Numerical exercises on fertilizer requirement, plant population, herbicides and water requirement
8. Use of tillage implements-reversible plough, one way plough, harrow, leveler, seed drill
9. Study of soil moisture measuring devices
10. Measurement of field capacity, bulk density and infiltration rate
11. Measurement of irrigation water.

Suggested Reading:

1. *S.R. Reedy. Agronomy of Field Crops*
2. *Gopal Chandra De. Fundamentals of Agronomy*
3. *Chhida Singh & Others. Modern Techniques of Raising Field Crops*
4. *Pushpendra kr. Karhana. Master Guide Agriculture Science*
5. *P. Balasubramaniyam. Principles and Practices of Agronomy.*
6. *Dr. Rajendra Prasad. Textbook of Field Crops Production Commercial Crops*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Fundamentals of Plant Biochemistry and Biotechnology

Course Code: 13A.106

L	T	P	C
2	0	2	3

Course Objective:

- To teach fundamental aspects of biochemistry, regulation of biological/biochemical processes.
- To instill proficiency in basic laboratory techniques in both chemistry and biology.
- To impart knowledge of various techniques/fundamentals of plant tissue culture, genetic engineering, molecular markers, Quantitative Trait Loci (QTL) mapping and Marker Assisted Selection.

Unit I:

Importance of Biochemistry. Properties of Water, pH and Buffer. Carbohydrate: Importance and classification. Structures of Monosaccharides, Reducing and oxidizing properties of Monosaccharides, Mutarotation; Structure of Disaccharides and Poly saccharides. Lipid: Importance and classification; Structures and properties of fatty acids; storage lipids and membrane lipids. Proteins: Importance of proteins and classification; Structures, titration and zwitterions nature of amino acids; Structural organization of proteins.

Unit II:

Enzymes: General properties; Classification; Mechanism of action; Michaelis & Menten and Line Weaver Burk equation & plots; Introduction to allosteric enzymes. Nucleic acids: Importance and classification; Structure of Nucleotides, A, B & Z DNA; RNA: Types and Secondary & Tertiary structure. Metabolism of carbohydrates: Glycolysis, TCA cycle, Glyoxylate cycle, Electron transport chain. Metabolism of lipids: Beta oxidation, Biosynthesis of fatty acids.

Unit III:

Concepts and applications of plant biotechnology: Scope, organ culture, embryo culture, cell suspension culture, callus culture, anther culture, pollen culture and ovule culture and their applications; Micro-propagation methods; organogenesis and embryogenesis, Synthetic seeds and their significance; Embryo rescue and its significance; somatic hybridization and cybrids; Somaclonal variation and its use in crop improvement; cryo-preservation;

Unit IV:

Introduction to recombinant DNA methods: physical (Gene gun method), chemical (PEG mediated) and Agrobacterium mediated gene transfer methods; Transgenics and its importance in crop improvement; PCR techniques and its applications; RFLP, RAPD, SSR; Marker Assisted Breeding in crop improvement; Biotechnology regulations.

Practical:

1. Preparation of solution, pH & buffers,
2. Qualitative tests of carbohydrates and amino acids.
3. Quantitative estimation of glucose/ proteins.
4. Titration methods for estimation of amino acids/lipids,
5. Effect of pH, temperature and substrate concentration on enzyme action,
6. Paper chromatography/ TLC demonstration for separation of amino acids/ Monosaccharides.

7. Sterilization techniques.
8. Composition of various tissue culture media and preparation of stock solutions for MS nutrient medium. Callus induction from various explants.
9. Micro-propagation, hardening and acclimatization.
10. Demonstration on isolation of DNA.
11. Demonstration of gel electrophoresis techniques and DNA finger printing

Suggested Reading:

1. *H.D. Kumar. A Textbook on Biotechnology*
2. *David T. Plummer. An Introduction to Practical Bio Chemistry*
3. *Jeremy M. Bera & Others. Biochemistry*
4. *Albert L. Lehninger. Biochemistry*
5. *Nicholas C. Price. Fundamentals of Enzymology*
6. *Jyoti Sexena & Others. Laboratory Manual of Microbiology Biochemistry & Molecular Biology*
7. *S.K. Gakhar & Others. Molecular Biology a Laboratory Manual*
8. *G. Michael Black Burn. Nucleic Acids in Chemistry and Biology*
9. *P.K. Gupta. Plant Biotechnology*
10. *H.S. Chawla. Introduction to Plant Biotechnology*
11. *Paolo Fasella, Anwar Hussain. Plant Biotechnology*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Introduction to Soil Science

Course Code: 13A.107

L	T	P	C
2	0	2	3

Course Objective:

- To get aware of terminology and concepts in soil science.
- To understand various physical, chemical, and biological properties of soil in relation to the growth of native and agricultural
- To gain laboratory skills to analyse soil/irrigation water/plant tissue for their nutrient content

Unit I:

Soil as a natural body, Pedological and edaphological concepts of soil; Soil genesis: soil forming rocks and minerals; weathering, processes and factors of soil formation; Soil Profile, components of soil;

Unit II:

Soil physical properties: soil-texture, structure, density and porosity, soil colour, consistence and plasticity; Elementary knowledge of soil taxonomy classification and soils of India; Soil water retention, movement and availability; Soil air, composition, gaseous exchange, problem and plant growth, Soil temperature; source, amount and flow of heat in soil; effect on plant growth,

Unit III:

Soil reaction-pH, soil acidity and alkalinity, buffering, effect of pH on nutrient availability; soil colloids - inorganic and organic; silicate clays: constitution and properties; sources of charge; ion exchange, cation exchange capacity, base saturation; soil organic matter: composition, properties and its influence on soil properties; humic substances - nature and properties;

Unit IV:

Soil organisms: macro and micro organisms, their beneficial and harmful effects; Soil pollution - behaviour of pesticides and inorganic contaminants, prevention and mitigation of soil pollution.

Practical:

1. Study of soil profile in field.
2. Study of soil sampling tools, collection of representative soil sample, its processing and storage.
3. Study of soil forming rocks and minerals.
4. Determination of soil density, moisture content and porosity.
5. Determination of soil texture by feel and Bouyoucos Methods.
6. Studies of capillary rise phenomenon of water in soil column and water movement in soil.
7. Determination of soil pH and electrical conductivity.
8. Determination of cation exchange capacity of soil.
9. Study of soil map.
10. Determination of soil colour.

11. Demonstration of heat transfer in soil.
12. Estimation of organic matter content of soil.

Suggested Reading:

1. *Hinrich L. Bohn. Soil chemistry*
2. *Nylec Brady. The Nature and Properties of Soils*
3. *T.D. Biswas. Textbook of Soil Science*
4. *R.K. Mehra. Textbook of Soil Science*
5. *Indian Society of Soil Science. 2012. Fundamentals of Soil Science, IARI, New Delhi.*
6. *Das, D. K .2015. Introductory Soil Science, 4th Edition, Kalyani Publishers, New Delhi*
7. *Sehgal,J. 2015. A Text Book of Pedology – Concepts and Applications, Kalyani Publishers,New Delhi.*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Introduction to Forestry

Course Code: 13A.108

L	T	P	C
1	0	2	2

Course Objective:

- To understand various terminology, classification and Indian forest policies & importance of silviculture/agroforestry
- To acquaint with various forest regeneration techniques and trending inter-cultivation operations
- To impart practical skills regarding various methods used in forest mensuration

Unit I:

Introduction – definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies.

Unit II:

Forest regeneration, Natural regeneration - natural regeneration from seed and vegetative parts, coppicing, pollarding, root suckers; Artificial regeneration – objectives, choice between natural and artificial regeneration, essential preliminary considerations.

Unit III:

Crown classification. Tending operations – weeding, cleaning, thinning – mechanical, ordinary, crown and advance thinning. Forest mensuration – objectives, diameter measurement, instruments used in diameter measurement; Non instrumental methods of height measurement - shadow and single pole method; Instrumental methods of height measurement - geometric and trigonometric principles, instruments used in height measurement; tree stem form, form factor, form quotient, measurement of volume of felled and standing trees, age determination of trees.

Unit IV:

Agroforestry – definitions, importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens. Cultivation practices of two important fast growing tree species of the region.

Practical:

1. Identification of tree-species.
2. Diameter measurements using calipers and tape, diameter measurements of forked, buttressed, fluted and leaning trees.
3. Height measurement of standing trees by shadow method, single pole method and hypsometer.
4. Volume measurement of logs using various formulae.
5. Nursery lay out, seed sowing, vegetative propagation techniques.
6. Forest plantations and their management.
7. Visits of nearby forest based industries.

Suggested Reading:

1. S.R. Reddy , C. Nagamani. *Introduction to Forestry*
2. Dwivedi, A.P. 1980. *Forestry in India*, Jugal Kishore and Company, DehraDun
3. Negi, S.S. 1999. *Agroforestry hand book*, International book distributor, DehraDun.
4. Ram Prakash and Drake Hocking. 1986. *Some favourite trees for fuel and fodder*, International book distributor, Dehradun.
5. Singh, S.P. 2009. *Tree farming-*. Agrotech Publishing academy, Udaipur.
6. Singh, S.P. 2010. *Favourite Agroforestry trees*, Agrotech Publishing academy, Udaipur.
7. Troup, T.S. 1986. *Silviculture of Indian trees (Vol. II & III)-* International book distributor, Dehradun.

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Comprehension & Communication skills in English

Course Code: 40B.102

L	T	P	C
1	0	2	2

Course Objective:

- It has been specially designed to incorporate several language *skills* simultaneously (such as reading, writing, listening, and writing).
- It provides students with situations that allow for well-rounded development and progress in all areas of language *learning*. In her reflection.
- It enables the learner to *communicate* effectively and appropriately in real life situation.

Unit I:

War Minus Shooting- The sporting Spirit. A Dilemma- A layman looks at science Raymond B. Fosdick.
You and Your English – Spoken English and broken English G.B. Shaw.

Unit II:

Reading Comprehension, Vocabulary- Antonym, Synonym, Homophones, Homonyms, often confused words. Exercises to Help the students in the enrichment of vocabulary based on TOEFL and other competitive examinations.

Unit III:

Functional grammar: Articles, Prepositions, Verb, Subject verb Agreement, Transformation, Synthesis, Direct and Indirect Narration. Written Skills: Paragraph writing, Precise writing, Report writing and Proposal writing.

Unit IV:

The Style: Importance of professional writing. Preparation of Curriculum Vitae and Job applications. Synopsis Writing. Interviews: kinds, Importance and process.

Practical

1. Listening Comprehension: Listening to short talks lectures, speeches (scientific, commercial and general in nature).
2. Oral Communication: Phonetics, stress and intonation, Conversation practice.
3. Conversation: rate of speech, clarity of voice, speaking and Listening, politeness
4. Reading skills: reading dialogues, rapid reading, intensive reading, improving reading skills.
5. Mock Interviews: testing initiative, team spirit, leadership, intellectual ability.
6. Group Discussions.

Suggested Reading:

1. Thomson and Martinet (1995) "A Practical English Grammar" OUP Publication
2. Thomson and Martinet (1997) "A Practical English Grammar, Exercise Books Vol. I & II" OUP Publication
3. Michal Swan(1995) "A Practical English Grammar" OUP Publication
4. David Green (1990) "Contemporary English Grammar Structure Composition" McMillan.
5. A.S. Hornby (1997) "Advance Learner's Dictionary" OUP Publication
6. S. Allen (1997) "Living English Structure" Orient Longman
7. Daniel Jones (1997) "Drills and Tests in English Sounds" ELBS
8. Krishnamohan " Speaking English Effectively" McMillan

Program: B.Sc.(Hons.) Agriculture
Semester: First
Course: Fundamentals of Horticulture
Course Code: 13A.101

L	T	P	C
1	0	2	2

Course Objective:

- To introduce with the basic and fundamental aspects of horticulture.
- To make understand the importance of horticulture in terms of economy, production, employment generation, environmental protection and human resource development
- To apply concepts of horticulture science to select, manage and improve horticultural plants and their products.
- To impart knowledge about various divisions of horticulture and their importance.

Unit I:

Horticulture - Its definition and branches, importance and scope; horticultural and botanical classification; climate and soil for horticultural crops;

Unit II:

Plant propagation-methods and propagating structures; Seed dormancy, Seed germination, principles of orchard establishment;

Unit III:

Principles and methods of training and pruning, juvenility and flower bud differentiation; unfruitfulness; pollination, pollinizers and pollinators; fertilization and parthenocarp; medicinal and aromatic plants;

Unit IV:

Importance of plant bio-regulators in horticulture. Irrigation – methods, Fertilizer application in horticultural crops.

Practical:

1. Identification of garden tools.
2. Identification of horticultural crops.
3. Preparation of seed bed/nursery bed.
4. Practice of sexual and asexual methods of propagation including micro-propagation.
5. Layout and planting of orchard.
6. Training and pruning of fruit trees.
7. Preparation of potting mixture.
8. Fertilizer application in different crops.
9. Visits to commercial nurseries/orchard.

Suggested Reading:

1. *Jitendra Singh. Fundamentals of Horticulture*
2. *Chadha, K.L. 2001. Handbook of Horticulture. ICAR, New Delhi.*
3. *Jitendra Singh, 2012. Basic Horticulture. Kalyani Publishers. New Delhi.*

4. *Randhawa, G.S. and Mukhopadhyaya, A. 1994. Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi*
5. *Kumar, N. 1997. Introduction to Horticulture. Rajyalakshmi Publications, Nagorcoil, Tamilnadu*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Introductory Biology

Course Code: 13A.110

L	T	P	C
1	0	2	2

Course Objective:

- To understand the basic concepts of zoology and botany i.e. origin of life, evolution, cell, tissue, cell division, etc
- To demonstrate comprehension of plant form and function particularly of flowering plants

Unit I:

Introduction to the living world, diversity and characteristics of life, origin of life

Unit II:

Evolution and Eugenics. Binomial nomenclature and classification

Unit III:

Cell and cell division. Morphology of flowering plants. Seed and seed germination.

Unit IV:

Plant systematic- viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

Practical:

1-3. Morphology of flowering plants –

- Root
- Stem
- Leaf and their modifications.

4. Inflorescence,

5. Flower

6. Fruits

7. Cell

8. Tissues

9. Cell division

10-12. Internal structure of

- Root
- Stem
- Leaf.

13. Study of specimens and slides.

14- 16. Description of plants –

- Brassicaceae
- Fabaceae
- Poaceae.

Suggested Reading:

1. *David Sadana. Cell Biology*
2. *Dr. C.B. Mamoria. Agriculture Problems of India*

3. *Biology – Raven P, Mason Johnson G B, Losos J. B, Singer. S.S , 10th edition, 2014. McGraw Hill Publications.*
4. *M.G. Simpson, 2006. Plant systematics. Elsevier Publications*
5. *H. C. Gangulee 1972 College Botany 4th edition.*
6. *A. C. Dutta 1964 A class book of Botany Botany for Degree Students, Oxford University Press, Calcutta.*
7. *N. T. Gill. 1966. Agricultural Botany. 2nd edition.*

Program: B.Sc. (Hons.) Agriculture

Semester: First

Course: Elementary Mathematics

Course Code: 13A.111

L	T	P	C
2	0	0	2

Course Objective:

- To impart knowledge and understanding of mathematical reasoning to make deductions and solve problems.
- To assist students from biology background in understanding fundamental aspects of mathematics

Unit I:

Straight lines : Distance formula, section formula (internal and external division), Change of axes (only origin changed), Equation of co-ordinate axes, Equation of lines parallel to axes, Slope-intercept form of equation of line, Slope-point form of equation of line, Two point form of equation of line, Intercept form of equation of line, Normal form of equation of line, General form of equation of line, Point of intersection of two st. lines, Angles between two st. lines, Parallel lines, Perpendicular lines, Angle of bisectors between two lines, Area of triangle and quadrilateral.

Unit II:

Circle: Equation of circle whose centre and radius is known, General equation of a circle, Equation of circle passing through three given points, Equation of circle whose diameters is line joining two points (x_1, y_1) & (x_2, y_2) , Tangent and Normal to a given circle at given point (Simple problems), Condition of tangency of a line $y = mx + c$ to the given circle $x^2 + y^2 = a^2$. Differential Calculus :

Unit III:

Definition of function, limit and continuity, Simple problems on limit, Simple problems on continuity, Differentiation of x^n , e^x , $\sin x$ & $\cos x$ from first principle, Derivatives of sum, difference, product and quotient of two functions, Differentiation of functions of functions (Simple problem based on it), Logarithmic differentiation (Simple problem based on it), Differentiation by substitution method and simple problems based on it, Differentiation of Inverse Trigonometric functions. Maxima and Minima of the functions of the form $y=f(x)$ (Simple problems based on it).

Unit IV:

Integral Calculus : Integration of simple functions, Integration of Product of two functions, Integration by substitution method, Definite Integral (simple problems based on it), Area under simple well-known curves (simple problems based on it). Matrices and Determinants: Definition of Matrices, Addition, Subtraction, Multiplication, Transpose and Inverse up to 3rd order, Properties of determinants up to 3rd order and their evaluation.

Suggested Reading:

1. *Krishi Ganita* by Gokhroo and Jain.
2. *Differential calculus* by Dr. D.C. Gokhroo
3. *Integral calculus* by Dr. D.C. Gokhroo

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Agriculture Heritage

Course Code: 13A.112

L	T	P	C
1	0	0	1

Course Objective:

- To familiarize with the indigenous knowledge adopted by farmers during ancient times
- To make student learn about different vision of future generation agriculture.
- To acquaint with various management practices under organic farming

Unit I:

Introduction of Indian agricultural heritage; Ancient agricultural practices, Relevance of heritage to present day agriculture; Past and present status of agriculture and farmers in society;

Unit II:

Journey of Indian agriculture and its development from past to modern era; Plant production and protection through indigenous traditional knowledge;

Unit III:

Crop voyage in India and world; Agriculture scope; Importance of agriculture and agricultural resources available in India; Crop significance and classifications; National agriculture setup in India;

Unit IV:

Current scenario of Indian agriculture; Indian agricultural concerns and future prospects.

Suggested Reading:

1. *B.Sambasiva Rao. Agriculture in India*
2. *A.K Vyas, Rishi Raj. An Introduction to Agriculture*
3. *Pushpendra kr. Karhana. Master Guide Agriculture Science*
4. *S.K. Verma. Women in Agriculture*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Rural Sociology & Educational Psychology

Course Code: 13A.113

L	T	P	C
2	0	0	2

Course Objective:

- To understand concept of rural sociology, its importance in agricultural extension, characteristics of Indian rural society
- To understand social groups, social stratification, culture, social values, social control and attitudes, leadership and training
- To understand concept of educational psychology, intelligence, personality, perceptions, emotions, frustration, motivation, teaching and learning

Unit I:

Sociology and Rural sociology: Definition and scope, its significance in agriculture extension

Unit II:

Social Ecology, Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development.

Unit III:

Educational psychology: Meaning & its importance in agriculture extension.

Unit IV:

Behavior: Cognitive, affective, psychomotor domain, Personality, Learning, Motivation, Theories of Motivation, Intelligence.

Suggested Reading:

1. Chandra Subhash. *An Introduction to Agriculture Social Science*
2. O.P Sharma, L.L Somani. *Fundamentals of Rural Sociology and Educational Psychology*
3. Vijender Singh. *Rural Extension Handbook*
4. S.K. Verma. *Women in Agriculture*

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: Human Values & Ethics

Course Code: 40B.103

L	T	P	C
1	0	0	0

Course Objective:

- To develop students' sensibility with regard to issues of gender in contemporary India.
- To provide a critical perspective on the socialization of human beings.
- To introduce students to information about some key aspects of Indian culture and ethics.
- To expose the students to debates on the politics and economics of work.
- To help students reflect critically on gender violence.
- To expose students to more egalitarian interactions between men and women.

Unit I:

Values and Ethics-An Introduction. Goal and Mission of Life. Vision of Life.

Unit II:

Principles and Philosophy. Self Exploration. Self Awareness. Self Satisfaction.

Unit III:

Decision Making. Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives.

Unit IV:

Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination.

Suggested Reading:

1. Meckenzie- (1975) *A manual of Ethics*, New Delhi: Oxford
2. William Lillie, (2007) *An Introduction to ethics*, Delhi: Surjeet
3. Subramanian R. (2013), *Professional Ethics*, New Delhi: Oxford

Program: B.Sc.(Hons.) Agriculture

Semester: First

Course: NSS/ Physical Education & Yoga Practices

Course Code: 13AP.117

L	T	P	C
0	0	4	0

Physical Education & Yoga Practices

Course Objective:

- With an objective of holistic development of students
- To familiarise with rules and regulations of various sport/games and yoga

Unit I:

1. Teaching of skills of Football – demonstration, practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit)
2. Teaching of different skills of Football – demonstration, practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit)
3. Teaching of advance skills of Football – involvement of all the skills in game situation with teaching of rules of the game
4. Teaching of skills of Basketball – demonstration, practice of the skills, correction of skills, involvement in game situation
5. Teaching of skills of Basketball – demonstration, practice of the skills, involvement in game situation

Unit II:

6. Teaching of skills of Basketball – involvement of all the skills in game situation with teaching of rule of the game
7. Teaching of skills of Kabaddi – demonstration, practice of the skills, correction of skills, involvement in game situation
8. Teaching of skills of Kabaddi – demonstration, practice of the skills, correction of skills, involvement in game situation
9. Teaching of advance skills of Kabaddi – involvement of all the skills in game situation with teaching of rule of the game
10. Teaching of skills of Ball Badminton – demonstration, practice of the skills, correction of skills, involvement in game situation

Unit III:

11. Teaching of skills of Ball Badminton – involvement of all the skills in game situation with teaching of rule of the game
12. Teaching of some of Asanas – demonstration, practice, correction and practice
13. Teaching of some more of Asanas – demonstration, practice, correction and practice
14. Teaching of skills of Table Tennis – demonstration, practice of skills, correction and practice and involvement in game situation
15. Teaching of skills of Table Tennis – demonstration, practice of skills, correction and practice and involvement in game situation
16. Teaching of skills of Table Tennis – involvement of all the skills in game situation with teaching of rule of the game

Unit IV:

17. Teaching – Meaning, Scope and importance of Physical Education
18. Teaching – Definition, Type of Tournaments
19. Teaching – Physical Fitness and Health Education
20. Construction and laying out of the track and field (*The girls will have Tennikoit and Throw Ball).

NSS

Unit I:

Introduction and basic components of NSS:

Orientation: history, objectives, principles, symbol, badge; regular programmes under NSS, organizational structure of NSS, code of conduct for NSS volunteers, points to be considered by NSS volunteers awareness about health

NSS programmes and activities

Concept of regular activities, special camping, day camps, basis of adoption of village/slums, conducting survey, analysing guiding financial patterns of scheme, youth programme/ schemes of GOI, coordination with different agencies and maintenance of diary

Unit II:

Understanding youth

Definition, profile, categories, issues and challenges of youth; and opportunities for youth who is agent of the social change

Community mobilisation

Mapping of community stakeholders, designing the message as per problems and their culture; identifying methods of mobilisation involving youth-adult partnership

Unit III:

Social harmony and national integration

Indian history and culture, role of youth in nation building, conflict resolution and peacebuilding

Volunteerism and shramdan

Indian tradition of volunteerism, its need, importance, motivation and constraints; shramdan as part of volunteerism

Unit IV:

Citizenship, constitution and human rights

Basic features of constitution of India, fundamental rights and duties, human rights, consumer awareness and rights and rights to information

Family and society

Concept of family, community (PRIs and other community based organisations) and society