

# **Study Scheme & Syllabus of B. Sc. (Hons) Agriculture Batch 2019 onwards**



**By**

**Board of Studies Agriculture  
Department of Academics  
IK Gujral Punjab Technical University Jalandhar**

## B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards

### Semester – First

Course code	Course Title	Load Allocation		Marks Distribution		Total	Credits
		L	P	Internal	External		
BSAG-101-19	Fundamentals of Horticulture	1	0	40	60	100	1
BSAG-102-19	Fundamentals of Soil Science	2	0	40	60	100	2
BSAG-103-19	Introduction to Forestry	1	0	40	60	100	1
BSAG-104-19	Comprehension & Communication Skills in English	1	0	40	60	100	1
BSAG-105-19	Fundamentals of Agronomy	2	0	40	60	100	2
BSAG-106-19 (A)	Introductory Biology*	2	0	40	60	100	2
BSAG-106-19 (B)	Elementary Mathematics**	2	0	40	60	100	2
BSAG-107-19	Agricultural Heritage	1	0	40	60	100	1
BSAG-108-19	Rural Sociology & Educational Psychology	1	0	40	60	100	1
BSAG-109-19	Human Values & Ethics	1	0	Satisfactory / Un Satisfactory			Non-Credit
BSAG-110-19	Fundamentals of Horticulture (Practical)	0	2	20	30	50	1
BSAG-111-19	Fundamentals of Soil Science (Practical)	0	2	20	30	50	1
BSAG-112-19	Introduction to Forestry (Practical)	0	2	20	30	50	1
BSAG-113-19	Comprehension & Communication Skills in English (Practical)	0	2	20	30	50	1
BSAG-114-19	Fundamentals of Agronomy (Practical)	0	2	20	30	50	1
BSAG-115-19	Introductory Biology (Practical)	0	2	20	30	50	1
BSAG-116-19	NSS /NCC / Physical Education & Yoga Practices	0	2	Satisfactory / Un Satisfactory			Non-Credit
Total		14	14	480	720	1200	19

**\*Remedial course for students who had studied non-medical in 10+2**

**\*\* Remedial course for students who had studied medical in 10+2**

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-101-19            Fundamentals of Horticulture**

Horticulture - Its definition and branches, importance and scope; horticultural and botanical classification; climate and soil for horticultural crops; Plant propagation-methods and propagating structures; Seed dormancy, Seed germination, principles of orchard establishment; Principles and methods of training and pruning, juvenility and flower bud differentiation; unfruitfulness; pollination, pollinizers and pollinators; fertilization and parthenocarpy; medicinal and aromatic plants; importance of plant bio-regulators in horticulture. Irrigation – methods, Fertilizer application in horticultural crops.

### **BSAG-102-19            Fundamentals of Soil Science**

Soil as a medium of growth, 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; Soil physical properties: soil-texture, structure, density and porosity, soil colour, consistence and plasticity; Elementary knowledge of soil taxonomy, classification, 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, 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; 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.

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-103-19 Introduction to Forestry**

Introduction – definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies. 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. Crown classification. Tending operations – weeding, cleaning, thinning – mechanical, ordinary, crown and advance thinning. Forest mensuration – objectives, diameter measurement, instruments used in diameter measurement; measurement of volume of felled and standing trees, age determination of trees. 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. Rejuvenation of forest trees.

### **BSAG-104-19 Comprehension and Communication Skills in English**

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. Reading Comprehension, Vocabulary- Antonym, Synonym, Homophones, Homonyms, often confused words. Exercises to help the students in the enrichment of vocabulary. 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. The Style: Importance of professional writing. Preparation of Curriculum Vitae and Job applications. Synopsis Writing. Interviews: kinds, Importance and process.

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-105-19            Fundamentals of Agronomy**

Agronomy and its scope, seeds and sowing, tillage and tith, crop density and geometry, Crop nutrition, manures and fertilizers, nutrient use efficiency, water resources, soil-plant-water relationship, crop water requirement, water use efficiency, irrigation- scheduling criteria and methods, quality of irrigation water and its measurement. Weeds- importance, classification, crop-weed competition, concepts of weed management; principles and methods, allelopathy. Growth and development of crops, factors affecting growth and development, plant ideotypes, crop rotation and its principles, adaptation and distribution of crops, harvesting and threshing of crops.

### **BSAG-106-19(A)            Introductory Biology**

Introduction to the living world, diversity and characteristics of life, origin of life, Evolution and Eugenics. Binomial nomenclature and classification Cell and cell division. Morphology of flowering plants. Seed and seed germination. Plant systematic- viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-106-19(B)**

### **Elementary Mathematics**

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. 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: 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), Integral Calculus: Integration of simple functions, Integration of Product of two functions, 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.

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-107-19          Agricultural Heritage**

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; Journey of Indian agriculture and its development from past to modern era; Plant production and protection through indigenous traditional knowledge; Crop voyage in India and world; Agriculture scope; Importance of agriculture and agricultural resources available in India; National agriculture setup in India; Current scenario of Indian agriculture; Indian agricultural concerns and future prospects.

### **BSAG-108-19          Rural Sociology & Educational Psychology**

Sociology and Rural sociology: Definition and scope, its significance in agriculture extension, Social Ecology, Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development. Educational psychology: Meaning & its importance in agriculture extension. Behavior: Cognitive, affective, psychomotor domain, Personality, Learning, Motivation, Theories of Motivation, Intelligence.

### **BSAG-109-19          Human Value and Ethics**

Values and Ethics-An Introduction. Goal and Mission of Life. Vision of Life. Principles and Philosophy. Self Exploration. Self Awareness. Self Satisfaction. Decision Making. Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives. Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination.

## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-110-19            Fundamentals of Horticulture (Practical)**

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

### **BSAG-111-19            Fundamentals of Soil Science (Practical)**

Study of soil profile in field, Study of soil sampling tools, collection of representative soil sample, its processing and storage, Study of soil forming rocks and minerals, Determination of soil density, moisture content and porosity, Determination of soil texture by feel and Bouyoucos Methods, Studies of capillary rise phenomenon of water in soil column and water movement in soil, Determination of soil pH and electrical conductivity, Determination of cation exchange capacity of soil, Study of soil map, Determination of soil colour, Demonstration of heat transfer in soil, Estimation of organic matter content of soil.

### **BSAG-112-19            Introduction to Forestry (Practical)**

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

### **BSAG-113-19            Comprehension and Communication Skills in English (Practical)**

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



## **B.Sc. (Hons) Agriculture Syllabus Batch 2019 Onwards**

### **BSAG-114-19            Fundamentals of Agronomy (Practical)**

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

### **BSAG-115-19            Introductory Biology (Practical)**

Morphology of flowering plants – root, stem and leaf and their modifications. Inflorescence, flower and fruits. Cell, tissues & cell division. Internal structure of root, stem and leaf. Study of specimens and slides. Description of plants - Brassicaceae, Fabaceae and Poaceae.

### **BSAG-116-19            NSS / NCC / Physical Education and Yoga Practices**

1. Teaching of skills of Football/basketball/kabaddi/badminton/table tennis/yoga – demonstration, practice of the skills, correction, involvement in game situation, teaching of rules of the game (For girls teaching of Tennikoit)
2. Teaching – Meaning, Scope and importance of Physical Education
3. Teaching – Definition, Type of Tournaments
4. Teaching – Physical Fitness and Health Education
5. Construction and laying out of the track and field (\*The girls will have Tennikoit and Throw Ball).