

**Teaching Scheme & Curriculum**  
**B.Sc. (Hons.) Agriculture**  
**Semester 1**

**Semester I**

<b>Sr No.</b>	<b>CourseCode</b>	<b>Subject Name</b>	<b>Credit</b>	<b>Subject short name</b>
1	20100106	Skill Enhancement course-I* (Soil water analysis)	0+2	SEC-I
2	20100105	Skill Enhancement course-II* (Horticulture nursery management)	0+2	SEC-II
3	20100107	Communication Skills	1+1	Eng. 1.1
4	20100108	Farming based livelihood systems	2+1	Agron 1.2
5	20100109	Rural Sociology and Educational Psychology	2+0	Ag. Ext. 1.1
6	20100110	Fundamentals of Agronomy	2+1	Agron 1.1
7	20100111	Fundamentals of Soil Science	2+1	Ag. Chem. 1.1
8	20100112	Fundamentals of Horticulture	2+1	Hort. 1.1
9	20100113	National Service Scheme (NSS-I)/ National Cadet Corps (NCC-I)	0+1	NSS-1/NCC-1
10	20100114	Introductory mathematics (need based)	1+0	Maths 1.1

**Syllabus of courses**

**Course:** B.Sc. Agriculture

**Semester:** 1

**Subject Syllabus: 20100105 - Horticulture nursery management: -**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
-	-	2	2	0	0	0	0	100	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content
1	Nursery and types of nursery
2	Study the germination of seeds for various horticultural crops.
3	Practical application of grafting, budding, and cutting propagation techniques.
4	Preparing and testing different potting media for nursery plants.
5	Irrigation Systems in Nurseries
6	Pest and Disease Management in Nurseries

**Subject Syllabus: 20100106 - Soil, Plant and Water Testing: -**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
-	-	02	02	30	20	50	-	-	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content
1	Collection and processing of soil for analysis
2	Background of analytical Chemistry
3	Determination of EC and pH of soil
4	Estimation of organic carbon content in soil
5	Estimation of available nitrogen in soil
6	Determination of available phosphorus in soil using spectrophotometer
7	Determination of available potassium in soil using flame photometer
8	Determination of available sulphur in soil using spectrophotometer
9	Determination of quality of irrigation water
10	Plant analysis

**Subject Syllabus: 20100107- Communication Skills**

Teaching and Examination Scheme										
Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
1	-	2	-	2	40	-	20	40	-	100

SEE - Semester End Examination, T - Theory, P - Practical

Course Content			
Sr.	Topics	W	T
1	<p><b>Communication Skills Theory</b></p> <p>Communication Process: The magic of effective communication; Building self-esteem and overcoming fears; Concept, nature and significance of communication process; Meaning, types and models of communication; Verbal and non-verbal communication; Linguistic and non-linguistic barriers to communication and reasons behind communication gap/ miscommunication.</p> <p>Basic Communication Skills: Listening, Speaking, Reading and Writing Skills; Precis writing/ Abstracting/Summarizing; Style of technical communication Curriculum vitae/resume writing; Innovative methods to enhance vocabulary, analogy questions.</p> <p>Structural and Functional Grammar: Sentence structure, modifiers, connecting words and verbal; phrases and clauses; Case: subjective case, possessive case; objective case; Correct usage of nouns, pronouns and antecedents, adjectives, adverbs and articles; Agreement of verb with the subject: tense, mood, voice; Writing effective sentences; Basic sentence faults;</p> <p><b>Practical</b></p> <p>Listening and note taking; Writing skills: precis writing, summarizing and abstracting; Reading and comprehension (written and oral) of general and technical articles; Micro-presentations and Impromptu Presentations: Feedback on presentations; Stage manners: grooming, body language, voice modulation, speed; Group discussions; Public speaking exercises; vocabulary building exercises; Interview Techniques; organization of events.</p>	100	48
<b>Total</b>		<b>100</b>	<b>48</b>
W - Weightage (%) , T - Teaching hours			

Course Outcomes	
At the end of this course Students Will be able to:	
1	Demonstrate active listening, interpersonal, and teamwork skills to enhance collaboration and conflict resolution.
2	Utilize appropriate communication tools, techniques, and digital platforms for effective message delivery.
3	Express ideas clearly, concisely, and confidently in diverse verbal communication settings.
4	Demonstrate verbal and non-verbal communication skills for clear and confident expression.

**Subject Syllabus: 20100108 - Farming based Livelihood Systems: -**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	1	3	20	20	20	40	-	100

M- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content	Weightage (%)	Teaching Hours
1	<b>Farming System:</b> definition, Concept, component, IFS, Principal and characteristics, Scope and importance of farming system, type of traditional and modern farming system	20	4
2	Status of agriculture in India and different states: Role of Agriculture Sector in Indian Economy, Problem in Agriculture Sector, Revolution in Agriculture Sector, Agriculture schemes in India, Major challenges faced by Indian Agriculture, Opportunities to agricultural Sector in India	15	4
3	Agricultural livelihood systems: Livelihood-Definition, concept and livelihood pattern in urban & rural areas, Agricultural livelihood systems (ALS): Meaning, approach, approaches and framework, Income of farmer and rural peoples in India	10	3
4	<b>Feasibility of different farming systems: for different agro-climatic zones, Commercial farming based livelihood models by NABARD, ICAR and other organizations across the country</b>	10	3
5	<b>Farming based livelihood system:</b> Crops and cropping systems, Livestock, (Dairy, Piggery, Goatry, Poultry, Duckry etc.), Horticultural crops, Agro--forestry systems, Aqua culture Duck/Poultry cum Fish, Dairy cum Fish, Piggery cum Fish etc.,	15	4
6	<b>Feasibility of different farming systems for different agro-climatic zones: Commercial farming based livelihood models by NABARD, ICAR and other organizations across the country</b>	10	3
7	<b>Case studies on different livelihood enterprises: associated with the farming. Risk &amp; success factors in farming based livelihood systems, Schemes &amp; programmes by Central &amp; State Government, Public &amp; Private organizations involved in promotion of farming based livelihood opportunities.</b>	10	4
8	<b>Role of farming based livelihood enterprises: in 21st Century in view of circular economy, green economy, climate change, digitalization &amp; changing life style.</b>	10	3

**Subject Syllabus: 20100109 - Rural Sociology and Educational Psychology**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	-	2	-	-	-	100	-	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content	Weightage (%)	Teaching Hours
1	Extension Education and Agricultural Extension: Meaning, definition, scope, and importance.	8	4
2	Sociology and rural sociology: Meaning, definition, scope, importance of rural sociology in Agricultural Extension, and interrelationship between rural sociology and Agricultural Extension.	8	4
3	Indian Rural Society: important characteristics, differences and relationship between rural and urban societies.	7	3
4	Social Groups: Meaning, definition, classification, factors considered information and organization of groups, motivation in group formation and role of social groups in Agricultural Extension.	7	3
5	Social Stratification: Meaning, definition, functions, basis for stratification, forms of social stratification-characteristics and- differences between class and caste system.	7	4
6	Cultural concepts: culture, customs, folkways, mores, taboos, rituals. Traditions: Meaning, definition and their role in Agricultural Extension.	7	3
7	Social Values and Attitudes: Meaning, definition, types and role of social values and attitudes in agricultural Extension. Social Institutions: Meaning, definition, major institutions in rural society, functions, and their role in agricultural Extension.	8	4
8	Social Organizations: Meaning, definition, types of organizations and role of social organizations in agricultural Extension. Social Control: Meaning, definition, need of social control and means of social control.	8	3
9	Social change: Meaning, definition, nature of social change, dimensions of social change and factors of social change. Leadership: Meaning, definition, classification, roles of leader, different methods of selection of professional and lay leaders.	10	4
10	Training of Leaders: Meaning, definition, methods of training, Advantages and limitations in use of local leaders in Agricultural Extension, Psychology and educational psychology: Meaning, definition, scope, and importance of	10	4

	educational psychology in Agricultural Extension.		
11	Personality: Meaning, definition, types, factors influencing the personality and role of personality in agricultural Extension.	8	3
12	Teaching: Learning process: Meaning and definition of teaching, learning, learning experience and learning situation, elements of learning situation and its characteristics. Principles of learning and their implication of teaching.	10	3

**Subject Syllabus: 20100110 - Fundamentals of Agronomy**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	1	3	20	20	20	40	-	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content	Weightage (%)	Teaching Hours
1	Agronomy and its scope: Definition, meaning and scope of Agronomy; art, science and business of crop production, relation of Agronomy with other disciplines of Agricultural Science, fields crops and classification, importance, ecology and ecosystem.	10	3
2	Seeds and sowing: Definitions of crops, variety and seed. Factors affecting crop stands establishment: good quality seed, proper tillage, time of sowing seed rate, depth and method of sowing: broadcasting, drilling, dibbling, transplanting etc.	15	4
3	Tillage and tillth: Definition, objectives, types, advantages and disadvantages of tillage including conservation tillage.	10	3
4	Crop density and geometry: plant geometry and planting geometry, its effect on growth, yield.	5	2
5	Crop nutrition: Definition of essential nutrients, criteria of essentiality, functional elements, classification of essential nutrients, role of macro and micro nutrients. Nutrient absorption, active and passive absorption of nutrients, forms of plant nutrients absorbed by plants, Combined /un-combined forms.	15	4
6	Manures and fertilizers, nutrient use efficiency: Sources of nutrients: Inorganic (fertilizers), organic (manures) and bio-fertilizers; their classification and characteristics, method of preparation and role of organic manures in crop production.	10	3
7	Integrated Nutrient Management (INM): Meaning, different approaches and advantages of INM. Green manure- role in crop production: Definition, objectives types of green	10	3

	manuring, desirable characteristics, advantages and limitations of green manuring.		
8	Water management: Water resources of the world, India and the state; Soil Moisture constants: gravitational water, capillary water, hygroscopic water, Soil moisture constants.	10	3
9	Weeds: Definition, Importance and basics of classification of weeds and their control. Agro- climatic zones of India and the state, cropping systems: Factors affecting cropping systems, major cropping patterns and systems in the country.	10	3
10	Sustainable crop production: Definition, importance and practices, natural resources and conservation pollution and pollutants, Allelopathy: Meaning and importance in crop production, Growth and development of crops: Definition, Meaning and factors affecting growth and development.	5	2

**Subject Syllabus: 20100111 - Fundamentals of Soil Science**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	1	3	20	20	20	40	-	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content	Weightage (%)	Teaching Hours
1	Soil: Pedological and edaphological concepts	10	3
2	Rocks and minerals, weathering	15	4
3	Silicate clays: constitution and properties, sources of charge, ion exchange, cation and anion exchange capacity and base saturation	10	3
4	Soil formation, Soil organic matter, Pedogenic processes	10	3
5	Soil colloids: inorganic and organic, Properties of soil colloids and Ion exchange in soils	15	4
6	Soil profile, soil texture, soil structure	10	3
7	Bulk density and particle density, soil consistency, soil temperature	10	4
8	Soil Air	10	3
9	Soil water	10	3
10	Soil reaction and buffering capacity	20	4
11	Soil taxonomy, keys to soil orders	10	3
12	Soils of India	10	2

**Course Subject : 20100112 - Fundamentals of Horticulture**

Teaching Scheme				Evaluation Scheme					
L	T	P	C	Internal Evaluation			ESE		Total
				MSE	CE	P	Theory	P	
2	-	1	3	20	20	20	40	-	100

L- Lectures; T- Tutorial; P- Practical; C- Credit; MSE- Mid-Semester Evaluation, CE- Continuous Evaluation, ESE- End Semester Examination

Sr. No.	Content	Weightage (%)	Teaching Hours
1	Horticulture-Its definition and branches, importance and scope	10	2
2	Horticultural and botanical classification	10	5
3	Climate and soil for horticultural crops	10	3
4	Plant propagation methods and propagating structure	15	7
5	Principles and methods of training and pruning, bahar treatment, juvenility and flower bud differentiation	15	4
6	Unfruitfulness; pollination, pollinizers and pollinators; fertilization and parthenocarpy	20	3
7	Seed dormancy and seed germination, Merits and demerits of sexual and asexual propagation Stock-scion relationship	10	3
8	Use of bio-regulator in horticulture, Irrigation & fertilizers application-method and quantity	10	3

**Subject Syllabus: 20100113 - National Service Scheme (NSS-I)/ National Cadet Corps (NCC-I)**

Teaching and Examination Scheme										
Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
-	-	2	-	1	-	-	100	-	-	100

SEE - Semester End Examination, T - Theory, P - Practical



Course Content		W - Weightage (%) , T - Teaching hours	
Sr.	Topics	W	T
1	<p><b>National Service Scheme (NSS-I)/ National Cadet Corps (NCC-I)National Cadet Corps</b></p> <p>Aims, objectives, organization of NCC and NCC DG's cardinals of discipline. Drill- aim, general words of command, attention, stands at ease, stand easy and Sizing, numbering, forming in three ranks, open and close order march, and Saluting at the halt, getting on parade, dismissing, and falling Marching, length of pace, and time of marching in quick/slow time and halt. Side pace, pace forward and to the rear. Turning on the march and wheeling. Saluting on the march. Marking time, forward march, and Changing step, formation of squad and squad drill. Command and control, organization, badges of rank, honors, and awards Nation Building- cultural heritage, religions, traditions, and customs of India. National integration. Values and ethics, perception, communication, motivation, decision making, discipline and duties of good citizens. Leadership traits, types of leadership. Character/ personality development. Civil defense organization, types of emergencies, firefighting, protection. Maintenance of essential services, disaster management, aid during development projects. Basics of social service, weaker sections of society and their needs, NGO's and their contribution, contribution of youth towards social welfare and family Structure and function of human body, diet and exercise, hygiene and sanitation. Preventable diseases including AIDS, safe blood donation, first aid, physical and mental health. Adventure activities. Basic principles of ecology, environmental conservation, pollution and its control.</p> <p><b>National Service Scheme (NSS) Introduction and Basic Components of NSS</b></p> <p>Orientation: history, objectives, principles, symbol, badge; regular programs under NSS Organizational structure of NSS, Code of conduct for NSS volunteers, points to be considered by NSS volunteers' awareness about health. NSS program activities: Concept of regular activities, special camping, day camps, basis of adoption of village/slums, conducting survey, analyzing guiding financial patterns of scheme, youth program/ schemes of GOI, coordination with different agencies and maintenance of diary. Understanding youth. Definition, profile, categories, issues and challenges of youth; and opportunities for youth who is agent of the social change. Community mobilization: Mapping of community stakeholders, designing the message as per problems and their culture; identifying methods of mobilization involving youth-adult partnership. Social harmony and national integration Indian history and culture, role of youth in nation building, conflict resolution and peace-building. Volunteerism and Indian tradition of volunteerism, its need, importance, motivation, and constraints; shaman as part of volunteerism 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 organizations) and society</p>	100	32
<b>Total</b>		<b>100</b>	<b>32</b>
At the end of this course Students Will be able to:			
1	Analyze the structure, objectives, and key activities of NSS to effectively participate in community service and youth development programs.		

2	Apply principles of community mobilization and volunteerism to plan and implement awareness and development activities in rural and urban settings.
3	Utilize understanding of citizenship, human rights, and youth-led change to contribute to social harmony, national integration, and conflict resolution initiatives.

**Subject Syllabus: 20100114 - Introductory Mathematics**

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Seminar Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
1	-	-	-	1	50	-	-	50	-	100

SEE - Semester End Examination, T - Theory, P - Practical

Course Content		W - Weightage (%) , T - Teaching hours	
Sr.	Topics	W	T
1	<p><b>Introductory Mathematics* Theory</b></p> <p>Algebra: Progressions- Arithmetic, Geometric and Harmonic Progressions. Matrices: Definition of Matrices, Addition, Subtraction, Multiplication, Transpose and Inverse up to 3rd order by adjoint method, Properties of determinants up to 3rd order and their evaluation.</p> <p>Differential Calculus: Definition - Differentiation of function using first principle, Derivatives of sum, difference, product and quotient of two functions, Methods, Increasing and Decreasing Functions. Application of Differentiation- Growth rate, Average Cost, and Marginal cost, Marginal Cost, Marginal Revenue. Partial differentiation: Homogeneous function, Euler's theorem, Maxima and Minima of the functions of the form <math>y = f(x)</math> and <math>y = f(x_1, x_2)</math>.</p> <p>Integral Calculus: Integration -Definite and Indefinite Integrals-Methods- Integration by substitution, Integration by parts. Area under simple well-known curves.</p> <p>Mathematical Models: Agricultural systems - Mathematical models - classification of mathematical models-Fitting of Linear, quadratic and exponential models to experimental data.</p>	100	16
<b>Total</b>		<b>100</b>	<b>16</b>

Course Outcomes	
At the end of this course Students Will be able to:	
1	Apply progressions and perform matrix operations, including determinants and inverses up to the 3rd order.
2	Use differentiation techniques for growth rate, cost, revenue analysis, and function optimization.
3	Solve integrals using various methods and compute areas under curves.
4	Develop and fit mathematical models (linear, quadratic, exponential) for agricultural systems.