GOKUL GLOBAL UNIVERSITY

Approved By Govt. of Gujarat
(Recognized by UGC under Section 22 & 2(f) of 1956)
(Gujarat Private State University Act 4 of 2018)

COURSE STRUCTURE

B.Sc(Hons.) Agriculture

Yearly Structure System

Teaching scheme

Agri. First Sem

Subject Code	Subject Name	Teaching Scheme (Hours)			Credits
		Theory	Tutorial	Practical	
Agron.1.1	Fundamentals of Agronomy-I	50		50	1+0
Ag.Chem.1.1	Fundamentals of Soil Science-I	50	20	30	2+1
Ag.Met.1.1	Introductory Agro meteorology & Climate Change	50	20	30	1+1
Ag.Micro.1.1	Agricultural Microbiology	50	20	30	1+1
Ag.Stat.1.1	Agricultural Informatics	50	20	30	2+1
GPB.1.1	Introductory Botany	50	20	30	1+1
Hort.1.1	Fundamentals of Horticulture	50	20	30	1+1
Pl.Path.1.1	Fundamentals of Plant Pathology	50	20	30	2+1
Eng.1.1	Comprehension and Communication Skill in	50	20	30	1+1
Maths.1.1	Elementary Mathematics	50	50	-	2+0
HVE.1.1	Human value & Ethics (Non gradial)	50	50	-	1+0
PE.1.1	NSS/NCC/Physical Education & Yoga Practices (Non gradial)	-	-	100	0+1

PROGRAMME OUTCOMES (POs)

A student upon successful completion of Agriculture in should be able to assume responsibilities as Agriculture specialists, consultants, educators, administrators in a wide variety of professional settings.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

1. Utilize/apply the concepts, theories and principles of Agriculture
2. Demonstrate advance competence in practice of Agriculture .
3. Practice as a Agriculture specialist.
4. Demonstrate leadership qualities and function effectively as Agriculture educator and manager.
5. Demonstrate skill in conducting research, interpreting and utilizing the findingsfrom health related research.
6. Demonstrate the ability to plan and effect change in Agriculture practice and in the delivery system.
7. Establish collaborative relationship with members of other disciplines.
8. Demonstrate interest in continued learning for personal and professional advancement.

Agron.1.1

Placement : Ist Sem

Course Description :-

Agronomy and its scope, seeds and sowing, tillage and tilth, crop density and geometry, Intercultural operations, concept of yield and yield components, Crop nutrition, manures and fertilizers, nutrient use efficiency . Classification of crops.Agroclimatic zones of West Bengal. 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, principles of storage

Objectives :-

At the end of the course, students will be able to :

Identification of crops, seeds, fertilizers, pesticides and tillage implements, Effect of sowing depth on germination and seedling vigour, Methods of fertilizer application, Study of yield contributing.

Course Content

Units	Hours		Course Content
	Theory	Practical	
I	10		**Introduction :** □ Introduction of indian agri. Heritage, Ancient agri. Practices. □ Journy of indian agri. Through protection. □ Impact of Social, economical, political & technological changes on education: ● Professional education ● Current trends and issues in education ● Educational reforms and National Educational policy, ● various educational commissions-reports ● Trends in development of nursing education in India
			●

Fundamentals of Soil SIECNCE

Placement: 1st sem

Hours of Instruction
Theory 50 Hours
Practical 40 Hours
Total : 100 Hours

Course Description

Soil profile-definition of soil profile, horizon, different types of horizon with characters. Soil Texture – Definition, methods of textural analysis, stock's law, assumptions, limitation, textural classes, use of textural triangle and relationship between texture and other soil properties. Soil Structure – Definition and classification of soil structure, difference between soil texture and soil structure, genesis.

Objectives:

At the end of the course the students will be able to:

Pedological and Edaphologicalconcept: Definition of Pedology and Edaphology, Difference between Pedology and Edaphology, Definition of Soil, soil as a natural body, components of soil, concept of pedon, polypedonetc. Rocks and minerals-classification and composition: Definition of rocks and minerals, Rock formation- factors, Classification of rocks – igneous, sedimentary and metaphorphic rocks and Definition of minerals, Secondary and primary minerals: description with examples. Weathering of rocks and minerals- definition, types of weathering- physical, chemical & biological weathering with examples. Soil formation-factors and processes: Soil formation: soil forming factors: passive & active factors, age of soil, Fundamental processes of soil formation, Different process of soil formation like podzolization, laterizationetc. Elementary knowledge of soil taxonomy, classification and soils of India; Soil profile-definition of soil profile, horizon, different types of horizon with characters. Soil Texture – Definition, methods of textural analysis, stock's law, assumptions, limitation, textural classes, use of textural triangle and relationship between texture and other soil properties. Soil Structure – Definition and classification of soil structure, difference between soil texture and soil structure, genesis of soil structure and aggregate formation. Important/agricultural significance of soil structure

Course Content :-

Unit	Hours	Content
I	**10**	□ Study of soil profile in field.Study of soil sampling tools, collection of representative soil sample □ Pedological and Edaphologicalconcept: Definition of Pedology and Edaphology □ Difference between Pedology and Edaphology, Definition of Soil, soil as a natural body, components of soil, concept of pedon, polypedonetc
II	**10**	□ capillary rise phenomenon of water in soil column and water movement in soil. □ Rocks and minerals-classification and composition: Definition of rocks and minerals, Rock formation- factors, Classification of rocks – igneous, sedimentary and metaphorphic □ Secondary and primary minerals: description with examples.

III	**10**	□ Secondary and primary minerals: description with examples. □ Fundamental processes of soil formation, Different process of soil formation like podzolization, laterizationetc. □ Elementary knowledge of soil taxonomy, classification and soils of India; Soil profile-definition of soil profile, horizon, different types of horizon with characters.
IV	**10**	□ Soil Texture – Definition, methods of textural analysis, stock's law, assumptions, limitation, textural classes, use of textural triangle and relationship between texture and other soil properties.
V	**10**	Soil Structure – Definition and classification of soil structure, difference between soil texture and soil structure, genesis of soil structure and aggregate formation. Important/agricultural significance of soil structure, management of soil structure.

COs	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 5
COs 2	Pos-1 , PSOs-1 to 5
Cos 3	Pos-1 , PSOs-1 to 5
COs 4	Pos-1 , PSOs-1 to 5
COs 5	Pos-1 , PSOs-1 to 7

Ag.Met.1.1

Placement: 1st sem

Hours of instruction
Theory: 50 Hours
Practical: 50Hours
Total : 100 Hours

Course Description

Meaning and scope of agricultural meteorology, Earth atmosphere its composison extent and structure atmospheric pressure

Objectives :-

At the end of the course the students will be able to:

Sociology and Rural Sociology-Meaning, Definition, Scope, its significance in Agricultural Extension, Indian Rural Society-
Important characteristics, Differences and Relationship between Rural and Urban societies;

Construction of Frequency Distribution from Ungrouped and Grouped Data; Calculation of different measures of Location and Dispersion from Ungrouped and Grouped frequency distributions.Calculation of simple correlation coefficient; Fitting of Linear Regression Equations.

Definition, Nature of Social change, Dimensions of social change and factors of social change.

COURSE CONTENT:

Unit	Hours	Content
I	**10**	**Introduction:** □ Agricultural Extension; Motivation – Meaning, Definition, Motivation cycle, Types, Classification of Motives, Theories of motivation □ Teaching – Learning process – Meaning and Definition of Teaching, Learning, Learning experience and Learning situation
II	**10**	**Health Assessment of patients** □ Communication: Meaning and process of communication, verbal and nonverbal communication, individual and group.
III	**10**	□ **Structural and functional Grammar: Introduction of Word Classes; Structure of Verb in English; Uses of Tenses; Study of Voice; Study of Conjunctions and Prepositions** □ **Comprehension skill: Reading and comprehension of general and technical articles.**
IV	**10**	**Management of patients with disorders of Gastro intestinal tract** □ **Spoken English: Conversations of everyday life, the concept of stress, stress shift. Silent letters in words, basic intonation patterns, preparing and address.** □ **Nature and origin of soils; soil forming rocks and minerals, their classification and composition, Soil forming processes, classifications of soils – soil taxonomy orders, Important soil physical properties and their importance; soil particle distribution**
V	**10**	□ **Soil inorganic colloids-their composition, properties and origin of charge ,Ion exchange in soil and nutrient availability, Soil organic matter-its composition and decomposition, effect on soil fertility,**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 7
COs 2	Pos-1 , PSOs-1 to 7
Cos 3	Pos-1 , PSOs-1 to 7
COs 4	Pos-1 , PSOs-1 to 7
COs 5	Pos-1 , PSOs-1 to 7
COs 6	Pos-1 , PSOs-1 to 7

Ag.Micro.1.1

Placement : 1st sem

Hours of Instruction
Theory : 50 Hours.

Practical : 50 Hours.

Total : 100 Hours

Course Description

Introduction Microbiology world prokaryotic and eukaryotic microbes, bectaris cell.

At the end of the course the students will be able to:

Ransportation recombination biological nitrogen fixation.

Microbiology laboratory and its power

Course Content :-

Units	Hours	Content
I	10	**Introduction** □ History and Scope of Microbiology: The discovery of micro-organism, spontaneous generation conflict, germ theory of diseases, microbial effect on organic and inorganic matter. □ Microscopy and Specimen Preparation: The bright field microscope, fixation, dyes and simple staining, □ Difference between prokaryotic and eukaryotic cells.Prokaryotic cell structure and functions.
II	10	□ History and Scope of Microbiology: The discovery of micro-organism, spontaneous generation conflict, germ theory of diseases, microbial effect on organic and inorganic matter.
III	25	□ Measurement of bacterial growth.G □ General properties of viruses and brief description of bacteriophages □ DNA as genetic material. □ Antibiosis, symbiosis, intra-microbial and extra-microbial association

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 5
COs 2	Pos-1 , PSOs-1 to 4
Cos 3	Pos-1 , PSOs-1 to 3

Hours of InstructionTheory 150 Hours

Practical 650 HoursTotal : 800 Hours

Ag.Sat.1.1

Placement : Ist sem

Course Description

Basic Concept: Introduction to statistics, Limitations of statistics, variable, statistic, parameter, types and sources of data, construction of frequency distribution tables, graphical representation of data, Measures of location and dispersion for raw and grouped data.

Objectives

At the end of the course the students will be able to:
Theory of Probability: Definitions (Classical, Empirical, Axiomatic) of Probability;

Theorem on Total and Compound Probability (For two events only without proof),

Probability Mass Function and Probability Density Function; Mathematical Expectation and Variance;
Theoretical Distributions: Binomial Distribution, Poisson distribution – Derivation of their mean and variance only.

Correlation and Regression: Simple Correlation and Regression.

Basic concept of sampling, Advantages of Sample Survey over Census Survey;

Course Content

I	**10**	□ Concept of Statistical Hypotheses, Critical Region, Acceptance Region, Level of Significance; Type I Error, Type II Error, Power of a Test and Test of Significance, Application of τ, chi-square and F Statistics. □ Experimental Designs: Basic concepts, Completely Randomized Design, Randomized Block Design and Latin Square design. □ Construction of Frequency Distribution from Ungrouped and Grouped Data;

II	**10**	□ Calculation of different measures of Location and Dispersion from Ungrouped and Grouped frequency distributions. □ .Calculation of simple correlation coefficient; □ Fitting of Linear Regression Equations.
III	**10**	□ Application of t, chi-square and F Statistics for Test of Significance in different statistical problems. □ Analysis of data from experiments laid out in CRD, RBD and LSD. □ Introduction to statistics, □ Introduction to statistics,

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 7
COs 2	Pos-1 , PSOs-1 to 7
Cos 3	Pos-1 , PSOs-1 to 7
COs 4	Pos-1 , PSOs-1 to 7
COs 5	Pos-1 , PSOs-1 to 7

GPB.1.1

Placement: 1st SEM

Hours of Instruction
Theory 50hours
Practical 50 hoursTotal : 100 hours

II	**10**	□ Determination of linkage and cross over analysis (through two point test cross and three point test cross data).Study of models on DNA and RNA structure. □ sex limited and sex influenced traits.Linkage and its estimation, □ , crossing over mechanisms and chromosome mapping. □ Structural and numericalchanges in chromosome, Mutation, classification.
III	**10**	□ Methods of inducing mutation& CIB technique; mutagenic agents and induction of mutation □ Qualitative & Quantitative traits, □ Polygenes and continuous variations;

IV	**10**	□ multiple factor hypothesis □ ,.Cytoplasmicinheritanceand maternal effect.Genetic disorders. □ Nature, structure and replication of genetic material.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 2
COs 2	Pos-1 , PSOs-1 to 7
Cos 3	Pos-1 , PSOs-1 to 4
COs 4	Pos-1 , PSOs-1 to 4

Hort.1.1

Placement: 1st sem

Hours of Instruction
Theory: 50 Hours.

Practical: 50 Hours.

Total: 100 Hours

Course Description

General – economic classification of insects; Bio-ecology and insect-pest management with reference to fruit, plantation, medicinal and aromatic crops; pest surveillance. Distribution, host range, bioecology, injury, integrated management of important insect pests affecting tropical, sub-tropical and temperate fruits, plantation, medicinal and aromatic crops like coconut, areca nut, oil palm, cashew, cacao, tea, coffee, cinchona,

Objectives

At the end of the course, the student will be able to:

rubber, betel vine senna, neem, belladonna,

pyrethrum, costus, crotalaria, datura, dioscorea, mint, opium, Solanumkhasianum

Storage insects – distribution, host range, bio-ecology, injury, integrated management of important insect pests attacking stored fruits, plantation, medicinal and aromatic crops

processed products. Insecticide residue problems in fruit, plantation, medicinal and aromatic crops and their maximum residue limits. General – economic classification of insects;

Course Content

Unit	Hours	Content
I	**10**	Bio-ecology and insect-pest management with reference fruit, plantation, medicinal and aromatic crops pest surveillance. Distribution, host range, integrated management of important insect pests affecting tropica
II	**10**	□ oil palm, cashew, cacao, tea, coffee, cinchona, rubber, betel vine senna, neem, belladonna, pyrethrum, Storage insects – distribution, integrated management of important insect pests attacking medicinal and aromatic crops and their processed products.
III	**15**	□ Insecticide residue problems in fruit, plantation, □ medicinal and aromatic crops and their maximum residue limits □ Study of symptoms of damage, collection, identification

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 4
COs 2	Pos-1 , PSOs-1 to 6
Cos 3	Pos-1 , PSOs-1 to 4

Pl.Path.1.1

Placement: 1st sem

Hours of InstructionTheory: 50Hours.

Practical: 50 Hours.

Total: 100 Hours

Course Description

Importance of plant diseases, scope and objectives of Plant Pathology. History of Plant Pathology with special reference to Indian work.Terms and concepts in Plant Pathology.Causes / factors affecting disease development: disease triangle and tetrahedron and classification of plant diseases. Important plant pathogenic organisms, different groups: fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, spiroplasmas, viruses, viroids, algae, protozoa,

General Objectives:

At the end of the course, the students will be able to:

phanerogamic parasites and nematodes with examples of diseases caused by them.

Diseases and symptoms due to abiotic causes.

Fungi: general characters, definition of fungus,

somatic structures, types of fungal thalli,

ungal tissues, modifications of thallus,

Content Outline

Unit	Hours		Course Content
	Theory	Practical	
I	10		□ reproduction (asexual and sexual). □ Nomenclature, Binomial system of nomenclature, □ Key to divisions, sub-divisions, orders and classes. □ Bacteria and mollicutes:
II	5	5	General morphological characters. Basic methods of classification and reproduction.
III	12		□ Acquaintance with various laboratory equipments and microscopy. □ Collection and preservation of disease specimen.Preparation of media □ isolation and Koch's postulates. □ .General study of different structures of fungi.
IV	10	5	□ .Study of symptoms of various plant diseases. □ Study of representative fungal genera.Staining and identification of plant pathogenic bacteria. □ Transmission of plant viruses □ Study of fungicides and their formulations.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 4
COs 2	Pos-1 , PSOs-1 to 3
Cos 3	Pos-1 , PSOs-1 to 4
COs 4	Pos-1 , PSOs-1 to 3

Practical 50
Hours Total :100 Hours

Eng.1.1

Theory 50Hour

Placement : 1st sem

Course Description

Communication: Meaning and process of communication, verbal and nonverbal communication, individual and group presentations, impromptu presentation, public speaking; Group discussion. Organizing seminars and conferences, oral presentation skills, visual communication, body language, Interviews: kinds, Importance and process
Objectives

At the end of the course, students will be able to:

Structural and functional Grammar:

Introduction of Word Classes;

Introduction of Word Classes;

Uses of Tenses; Study of Voice; Study of Conjunctions and Prepositions;Sentence Patterns in English.

Course Content

Unit	Hours	Content
I	**10**	Spoken English: Conversations of different situations in everyday life, the concept of stress, stress shift in words and sentences, , silent letters in words and pronunciation of words with silent letters, Comprehension skill: Reading and comprehension of general and technical articles.
II	**10**	□ Writing skill: Paragraph writing, précis writing, , report writing, synopsis writing and proposal writing, summarizing, abstracting, field diary and lab record, indexing, footnote and bibliographic procedures, preparation of Curriculum Vitae and Job applications. Structural Grammar: Exercises in word classes,
III	**15**	**Planning** identification and study of verbs in sentences, application of tenses and voice identification and study of verbs in sentences, application of tenses and voice structural grammar exercises, report writing, letter writing (different types of letters).
IV	**15**	**Organisation** **Spoken English: Conversations of everyday life, the concept of stress** **stress shift. Silent letters in words, basic intonation patterns, preparing and address.** **Listening and note taking, writing skills, oral presentation skills;**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 7
COs 2	Pos-1 , PSOs-1 to 7

Maths.1.1

Placement: 1st sem

Hours of Instruction
Theory: 100 Hours.
Practical: 0 Hours.
Total: 100 Hours

Course Description

Defferential calcules definition of function.

Objectives

At the end of the course the students will be able to:

1. Defination of function
2. Limit and continuity
3. Simple problem on limit
4. Simple problem on continuity

Content Outline

Unit	Hours	Content
I	**20**	□ Difference □ Product and quotient □ Two function □ Simple problem baesd on it
II	**30**	□ Maxima and minima □ Function of from y=f □

Course Description

Defferential calcules definition of function.

Objectives

At the end of the course the students will be able to:

5. Defination of function

6. Limit and continuity
7. Simple problem on limit
8. Simple problem on continuity

Content Outline

Unit	Hours	Content
I	**20**	□ Difference □ Product and quotient □ Two function □ Simple problem baesd on it
II	**30**	□ Maxima and minima □ Function of from y=f □

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 7
COs 2	Pos-1 , PSOs-1 to 7
Cos 3	Pos-1 , PSOs-1 to 7

HVE.1.1

Placement – 1ST SEM

Hours of Instruction Theory: 100
Practical 0 hrs
Total 100 hrs

Contents Outline

Unit	Hours	Content
I	**50**	● Positive Spirit.Body, ● Mind and Soul ● Attachment and Detachment..

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Cos	POs/ PSOs
COs 1	Pos-1 , PSOs-1 to 7