

FACULTY OF RURAL STUDIES
BHAKATA KAVI NARSINH MEHTA UNIVERSITY - JUNAGADH
BRS PROGRAMME (HONOURS/RESEARCH) AS PER NEP – 2020, UGC GUIDELINES & SOP
BRS SEMESTER – 7

Sr. No.	Course Category	Course Name	CCE	SEE	Total Marks	Credit (Th+Pra)	Total Credit
1	Discipline Specific Core Major - 17	1. Agronomy	50	50	100	4+0	4
		2. Horticulture & Forestry	50	50	100	4+0	
		3. Animal Husbandry	50	50	100	4+0	
		4. Rural Extension	50	50	100	4+0	
2	Discipline Specific Core Major - 18	1. Agronomy	50	50	100	4+0	4
		2. Horticulture & Forestry	50	50	100	4+0	
		3. Animal Husbandry	50	50	100	4+0	
		4. Rural Extension	50	50	100	4+0	
3	Discipline Specific Core Major - 19	1. Agronomy	50	50	100	4+0	4
		2. Horticulture & Forestry	50	50	100	4+0	
		3. Animal Husbandry	50	50	100	4+0	
		4. Rural Extension	50	50	100	4+0	
4	Discipline Specific Elective Minor-7 (Any one other than major Subject)	Agronomy	50	50	100	4+0	4
		Animal Husbandry	50	50	100	4+0	
		Horticulture	50	50	100	4+0	
		Rural Extension	50	50	100	4+0	
		Reproduction in Farm Animals	50	50	100	4+0	
5	On Job Training (Relevant to Major Subject)	Agronomy	75	75	150	0+6	6
		Animal Husbandry	75	75	150	0+6	
		Horticulture	75	75	150	0+6	
		Rural Extension	75	75	150	0+6	
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Note: THE SYLLABUS FOR BRS SEMESTER -7 FOR HONOURS DEGREE AND THE BRS SEMESTER -7 RESEARCH DEGREE IS SIMILAR AS GIVEN ABOVE.

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 17		Agronomy	4+0	50	50	100	2 Hrs.

Title : Advanced Agronomy

Course Objectives:

1. To provide in-depth knowledge of crop production principles and modern farming practices.
2. To understand the management of resources like water, soil, and nutrients efficiently.
3. To introduce students to precision farming, sustainable agriculture, and climate-resilient strategies.

Course Outcome:

By the end of this course, students are equipped to become Agronomists, Farm Managers, or Research Scientists capable of solving complex agricultural problems using scientific data and modern technology

Syllabus Content :

Unit 1: Climate Smart Agronomy 20%

- 1.1 Climate Change and Crop Production
- 1.2 Carbon Sequestration
- 1.3 Green House Gas Mitigation
- 1.4 Resilient Cropping System

Unit 2 : Precision Agronomy and Digital Technology 20%

- 2.1 Remote Sensing
- 2.2 GIS / GPS Application
- 2.3 IOT Based Crop Monitoring
- 2.4 Drone Technology
- 2.5 Variable Rate Technology

Unit 3 : Conservation Agronomy and Resource Management 20%

- 3.1 Zero Minimum Tillage
- 3.2 Cover Cropping
- 3.3 Crop Residue Management
- 3.4 Water Use Efficiency
- 3.5 Micro Irrigation Advancing

Unit 4 : Sustainable Cropping System and Agroecology 20%

- 4.1 Crop Diversification
- 4.2 Intercropping Science
- 4.3 Agro forestry System
- 4.4 Cover Crop Based Rotation
- 4.5 Biodiversity and Pollinator Management

Unit 5 : Natural and Biological Agronomy

20%

- 5.1 Soil Health and Microbial ecology
- 5.2 Bio fertilizer
- 5.3 Composting Technology
- 5.4 Natural Farming Principles
- 5.5 Certification Standard

References:

1. Principles of Agronomy by S.R. Reddy
2. Modern Techniques of Raising Field Crops by Chhidda Singh
3. Weed Management by U.S. Walia
4. Precision Farming by K.R. Krishna
5. Irrigation Agronomy by S.R. Reddy
6. A Handbook of Rural Studies by Dr. K.R.Bharad

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 17		Horticulture & Forestry	4+0	50	50	100	2 Hrs.

Course Title : MANAGEMENT OF FRUIT CROPS

Objective;

- 1 Students get knowledge about recent production Technology of fruit crops
- 2 To know the principle of production so useful in progressive Army
- 3 Create self employment source

Course Outcomes :

Ideally, this course transforms students into skilled professionals capable of managing commercial orchards, working in fruit nurseries, or serving as agricultural extension officers with specialized knowledge in pomology (fruit science).

Syllabus Content

Unit-1 Important pest and its management in fruit crops such as mango banana, coconut and guava	20%
Unit-2 Organic farming and its Importance in horticulture crops	20%
Unit-3 Diseases management in fruit crops such as mango, coconut, guava, banana	20%
Unit-4 Cultivation of new fruit crops in Gujarat such as fig and oil palm	20%
Unit-5 Cultivation of new crops in Gujarat e.g. vanilla and cashew nut	20%

Suggested Readings / Reference Books :

1. FAL ANE FUL (GUJRATI EDITION - MARCH-2015) - G.A.U.JUNAGADH
- 2.FALPAKO (GUJRATI EDITION MARCH-2013) G.A.U. JUNAGADH
- 3.FALVISHESHANK (GUJRATI EDITION) - G.A.U. ANAND
- 4.ADVANCE TECHNOLOGY IN HORTICULTURE - K.R. BHARAD
- 5.PLANT GROWTH REGULATION - K.R. BHARAD

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 17		ANIMAL HUSBANDRY	4+0	50	50	100	2 Hrs.

Title : Basic of Veterinary Pharmacology

Course Objectives & Course Outcome :

1. To Know about common Drugs for Animal Treatment
2. To Know about various Roots of Medication in Dairy Cattle
3. To Know about Tradition Medicine for Animal
4. To Know about Aayurvedic Medicine for Animal
5. Student can know about Primary Treatment of Dairy Cattle
6. This course helpful for learning different Drugs and Medication in Dairy Cattle
7. Student can learn Primary Use Medicine for Dairy Cattle

Syllabus Content :-

Unit 1: Definition of Drugs and Pharmacology. Source, Dose, Side effect and Types of Drugs. 20%

Unit 2: Methods of Medication in Dairy Cattle. 20%

Unit 3: Common Aayurvedic and Homeopathy Medicine for Dairy Cattle. 20%

Unit 4: Common Allopathic for Dairy Cattle 20%

Unit 5: Traditional Medicine for Dairy Cattle 20%

Suggested Readings / References: .

1. A text book of Animal Husbandry, by G. C. Banerjee
2. A Handbook of Animal Husbandry , by ICAR, New Delhi
3. “ Godarshan” A monthly Gujarati Magazine (Department of A.H. Gujarat State Gandhinagar)
4. Prani Aushadh Darshan, by Dr. M.G. Maradiya & Dr. K.A. Sadariya
5. Domestic Animal, by Dr. Harbansingh

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 17		Rural Extension	4+0	50	50	100	2 Hrs.

Course Title : RURAL DEVELOPMENT - 1

Course Objectives

- 1) Explain the history of rural development and provide information on various programs.
- 2) Develop an understanding of the organizations working at the local level.
- 3) Provide information about various schemes for agricultural and animal husbandry development.

Course Outcomes:

- 1) Explain the history of rural development and get information on various programs.
- 2) Develop an understanding of the organizations working at the local level.
- 3) To get information about various schemes for agricultural and animal husbandry development.

Course Content :-

Unit 1 History of Rural development in India after Independence. Objectives in Rural development programs and work done for rural development.	20%
Unit 2 Introduction and functions of various organizations working for Rural development. (DRDA, Co - operative Bank, Co-operative Societies).	20%
Unit 3 Credit and subsidy assistance for individual development and community development.	20%
Unit 4 Various schemes for agricultural development and animal husbandry development.	20%
Unit 5 Participation, field of work, and activities of voluntary organizations (NGOs) in rural Development.	20%

References:

- 1) Rural Social Institutions of India (ભારતની ગ્રામીણ સામાજિક સંસ્થાઓ)
Author: Shah and Joshi (શાહ અને જોષી)
- 2) Agricultural Economics (કૃષિ અર્થશાસ્ત્ર)
Author: Mahesh Joshi (મહેશ જોષી)
- 3) Rural [Development] of India (ભારતનું ગ્રામીણ...)
Author: Babulal (બાબુલાલ)

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 18		Agronomy	4+0	50	50	100	2 Hrs.

Title: - Crop Pest and Diseases-1

Objectives:-

1. To study the pest and disease damaged to field crops
2. To identify and to know control measures of different pest and diseases of the field crops
3. To know the nature of damage of insect and symptoms of diseases.

Outcomes :-

1. To Know the pest and disease damaged to field crops
2. To identify and to know control measures of different pest and diseases of the field crops
3. To know the nature of damage of insect and symptoms of diseases.

Course Content :-

Unit – 1 Definition and types of insect-pest and classification of insect. Why insect attract to crops plants

Unit -2 Detailed marks of identification, host range, nature of damage of important field crops like. 1)Cotton, 2) Groundnut, 3) Sesame, 4) Bajara (Pearl millet), 5) Tobacco

Unit -3 Detailed integrated insect management of important field crops like. 1) Cotton, 2) Groundnut, 3) Sesame, 4) Bajara (Pearl millet), 5) Tobacco

Unit -4 Occurrence, economic importance, symptoms, favourable weather conditions of diseases of important field crop like. 1) Cotton, 2) Groundnut, 3) Sesame, 4) Bajara (Pearl millet), 5) Tobacco

Unit -5 Detailed control measures of important field crop like. 1) Cotton, 2) Groundnut, 3) Sesame, 4) Bajara (Pearl millet), 5) Tobacco

Practical :

Field visit to study different insect damage and disease symptoms of above mentioned crops and dry preservation of insect damage parts of plant and damaged parts of plants by diseases.

References:

1. Principles and procedures of plant protection (Third edition) - S.B.Chattopadhyay
2. Biology of insect - S.C.Saxena
3. General Entomology (Third edition) - M.S. Mani
4. Sampurna pak sarakshan (Part-1) - Babubhai Avarani
5. Sampurna pak sarakshan (Part-2) - Babubhai Avarani
6. Introduction to Principles of Plant Pathology - R.S.Singh
7. Diseases of crop plants in India - G. Rangaswami
8. Plant Diseases (Sixth edition) - R.S.Singh

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 18		Horticulture & Forestry	4+0	50	50	100	2 Hrs.

Title : Production Technology in Vegetables

Objectives:

- 1) Students get knowledge about vegetable production
- 2) To know the principal of vegetable production so useful in progressive farming
- 3) Create self employment source

Course Outcomes :-

1. Understand Importance and Classification

Understand the importance and nutritional value of vegetables in the human diet.

Gain knowledge about the current status of vegetable production and export opportunities in India and Gujarat.

Classify different vegetables based on botanical traits and growing seasons.

2. Nursery Management and Propagation

Learn scientific methods to prepare healthy seedlings (e.g., Pro-tray method, Greenhouse nursery).

Implement modern seed treatment and sowing techniques.

3. Production Technology

Acquire knowledge of the entire cultivation process—from land preparation to harvesting—for various crops (Tomato, Brinjal, Chilli, Cauliflower, Cucurbits, etc.).

Plan Fertilizer Management and Irrigation Systems (Drip/Sprinkler).

4. Plant Protection and Weed Control

Identify major diseases and pests affecting vegetable crops.

Develop skills to protect crops using Integrated Pest Management (IPM) practices.

5. Harvesting and Post-Harvest Management

Determine the Maturity Indices of vegetables.

Theory :

Unit-1 Importance of hybrid and transgenic varieties in vegetable production	20%
Unit-2 Preservation of vegetable and value added products of vegetable	20%
Unit-3 Importance of plant growth regulators in vegetables	20%
Unit-4 Seed production technology in vegetable crops	20%
Unit-5 Weed and weed management in vegetable crops	20%

Reference:

- 1 ADVANCE TECHNOLOGY IN HORTICULTURE----K.R. BHARAD
- 2 PLANT GROWTH REGULATION----- K.R. BHARAD
- 3 HORTICULTURE A BASIC AWARENESS--- BANDENDISTEL R. F.(1982)
- 4 શાકભાજી વિજ્ઞાન- બાબુભાઈ અવરાની
- ૫ શાકભાજી વિશેષાંક-- ગુ.કૃ.યુ. આણંદ

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 18		Animal Husbandry	4+0	50	50	100	2 Hrs.

Title : Advance in Animal Genetics and Breeding

Course Objectives & Learning Outcomes

1. To understand the underlying truth of heritability and Application
2. To know the importance of Breeding for important of Animals
3. To get familiar with selection methods and to apply in Practice
4. To understand the importance of reproduction in profitability of Animal Husbandry
5. To know various reproductive problem and how to overcome from them

Course Content:

Unit 1 : Animal selection and Type of selection	20%
Unit 2 : History of Animal Breeding and methods of Breeding and their merits and demerits.	20%
Unit 3 : Mechanism of female reproduction 3.1 Gameto Genesis : Orgenesis, Spermatoginesis	20%
Unit 4 : Estrus Cycle and Hormones related to reproduction	20%
Unit 5 : Genetics and low of Inheritance mendels experience on	20%

References:

1. Pashu Sanvardhan – R.K. Shukal
2. Pashu Vyavstha – Arun D. Dave
3. Vyaruhary Gopalan – Krushnlal Shukal
4. A text book of Animal Husbandry – G.C. Baneerji
5. A Hand book of Animal Husbandry , by ICAR New Delhi
6. Animal Genetics and Breeding by BAIF

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 18		Rural Extension	4+0	50	50	100	2 Hrs.

Title : Community Development

Course Objectives:

1. To examine the history of community development.
2. To obtain information about community projects/schemes.
3. To gain knowledge about the rural economy.

Learning Outcomes :

1. To get the history of community development.
2. To obtain information about community projects/schemes.
3. To gain knowledge about the rural economy.

Course Content:

- Unit 1: Meaning and objectives of the Community Development Program. 20%
- Unit 2: Programs, projects, and schemes for community development and their impact on society. 20%
- Unit 3: Administrative framework/structure for community development programs. 20%
- Unit 4: Factors bringing change to rural society and the rural economy. 20%
- Unit 5: Effects of British rule on the rural economy. 20 %

References:

1. Rural Development in India by Babubhai Avarani
2. India's social organizations by Shah and Joshi

Name of Course	Sem .	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 19		Agronomy	4+0	50	50	100	2 Hrs.

Title : Post Harvest Technology in Agronomy

Course Objectives

The primary objectives of this course are:

1. Students learn about post-harvest technology in agriculture.
2. Students learn about various post-harvest methods in agriculture.
3. Students learn how to store agricultural produce.
4. Students should learn how to add value to agricultural crops.
5. Knows how to carry out quality control.

Outcomes:

1. Students get about post-harvest technology in agriculture.
2. Students get about various post-harvest methods in agriculture.
3. Students get how to store agricultural produce.
4. Students should get how to add value to agricultural crops.
5. Knows how to carry out quality control.

Course Content :

Unit 1: Post Harvest Physiology and Harvest Management

20%

- 1.1 Crop Maturity Indices
- 1.2 Respiratory rate
- 1.3 Transpiration
- 1.4 Role of Ethylene
- 1.5 Impact on quality Harvesting Time, Crop Verity and Nutrition Management
- 1.6 Crop Maturity Indices for various crop

Unit 2 : Post-harvest Handling, Cleaning and Greeding

20%

- 2.1 Removing Field heat
- 2.2 Cleaning and Sorting
- 2.3 Grading standards, packaging Ingredients.
- 2.4 Ingredients Importance of crop characteristics and moisture in reducing mechanical damage

Unit 3: Storage and Protection techniques

20%

- 3.1 Temperature and moisture management
- 3.2 CA/MA Storage
- 3.3 Cold Storage
- 3.4 Hermetic Storage
- 3.5 Microorganism and Pest Management
- 3.6 Warehouse, Design, Cold-chain
- 3.7 Silo bag and Principles of Fumigation

Unit 4 : Processing and value addition Technology**20%**

- 4.1 Drying, Mealing, Processing, Minimum Processing.
- 4.2 Solar Dryer

Unit 5 : Quality Control, Damage assessment and Supply chain**20%**

- 5.1 Damaged Causes in Post Harvest.
- 5.2 HACCP, Food Safety, Traceability
- 5.3 The role of agronomic factors in the farm-to-market supply chain.
- 5.4 Damaged Audit & Quality Testing
- 5.5 Business Model for FPO's
- 5.6 Policies and Subsidy Schemes

References:

1. Post-harvest management of fruits and vegetable by Dr. L. S. Kundaliya & Others
 - * Publisher: Gujarat Granth Nirman Board, Ahmedabad
2. Value addition and processing of agricultural produce
 - * Publisher: Anand/Junagadh Agricultural University (Office of the Director of Extension Education).
3. Agricultural Economics and Market Systems
 - * Publisher: Gujarat Granth Nirman Board / Agricultural Universities.
4. Post-Harvest Technology by Prof. J. B. Savani
 - * Publisher: Junagadh Agricultural University

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 19		Horticulture & Forestry	4+0	50	50	100	2 Hrs.

TITAL: APPLIED FORESTRY

OBJECTIVES:

- 1) Students aware with forest department and its activities
- 2) Students know about apiculture
- 3) Students aware with Abhiyaran and sanctuary

Outcomes:

- 1) Students obtain with forest department and its activities
- 2) Students get about apiculture
- 3) Students obtain with abhiyaran and sanctuary

Course Content :-

UNIT 1 SOCIAL FORESTRY

20%

1. DEFINATION
2. IMPORTANCE OF SOCIAL FORESTRY
3. DIFFERENT SCHEMES OF SOCIAL FORESTRY

UNIT 2 APICULTURE (HONEYBEE KEEPING)

20%

1. IMPORTANCE
2. TYPES OF BEE
3. STRUCTURE OF COMB
4. METHOD OF HONEYBEE REARING
5. CENTERS OF BEE REARING

UNIT 3 SEED Collection

20%

1. SELECTION OF TREES
2. YEAR FOR SEED COLLECTION
3. METHODS OF SEED COLLECTION
4. SEED TREATMENTS

UNIT 4 ROOT TRAINER NURSERY AND CLONAL MULTIPLICATION

20%

1. GREENING INDIA CENTRAL GOVERNMENT SCHEME

UNIT 5 BRIEF INFORMATION

20%

1. IMPORTANT DAYS
2. CENTURIES OF GUJARAT
3. ABHIYARAN OF GUJARAT
4. AWORDS OF CENTRAL GOVT.
5. AWORDS OF GUJARAT GOVT.

Recommended References

- 1) FOREST IN INDIA - V.P. AGRAVAL
- 2) FORESTRY IN INDIA –A.P.DWIVEDI
- 3) A TEXT BOOK OF SILVICULTURE - A.P. DWIVEDI
- 4) VAN CHETNA - DEPT OF FOREST GUJARAT

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 19		Animal Husbandry	4+0	50	50	100	2 Hrs.

Title : POULTRY INDUSTRIES

Course Objectives

The primary objectives of this course are:

1. To understand the importance of management skills of poultry industries.
2. To learn about cure & management of different age of birds.
3. To understand how to make poultry business profitable.
4. To understand the importance of learning system of birds.

Outcomes:

1. To get the importance of management skills of poultry industries.
2. To get about cure & management of different age of birds.
3. To get how to make poultry business profitable.
4. To get the importance of learning system of birds.

Course Content

Unit – 1: Terminology related to poultry and poultry rearing methods 20%

Unit – 2: Incubation, hatching and brooding / Types of brooding and care during brooding / Types of hatching and care during brooding 20%

Unit – 3: Principals of light in poultry farming / Care of management of broiler and grower. 20%

Unit – 4: Care & management of layer and eggs structure of nutritive value of eggs and wrong belief about eggs 30%

Unit – 5: Poultry feeds: types of feeds, ingredients of feeds and important facts for preparation of feeds. 10%

Recommended References :-

1. A Text books of animal husbandry
2. A handbook of animal husbandry G.C.Benjee
3. Poultry production
4. Margha Palan - AAIJ
5. Margha Palan department of A.H

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Major - 19		Rural Extension	4+0	50	50	100	2 Hrs.

Title : Social Research - 1

Course Objectives :-

The primary objectives of this course are:

1. To identify social problems and gain information about them.
2. To develop a general understanding of social research.
3. To obtain information about the methodologies of social research.

Outcomes :

1. To get social problems and gain information about them.
2. To develop a general understanding of social research.
3. To obtain information about the methodologies of social research.

Course Content :-

Unit 1: Meaning, definition, and characteristics of social science.	20%
Unit 2: Definitions of social research and steps of social research.	20%
Unit 3: Importance and objectives of social research.	20%
Unit 4: Complete Enumeration and Sampling in Social Research	20%
Unit 5: Importance of data and its types in social research.	20%

Recommended References

1. Rural Sociology and Rural Development - Akshaykumar Desai
2. Social Research - Dr. J. K. Shah and J. K. Dave

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Minor -7		Advanced Agronomy	4+0	50	50	100	2 Hrs.

Title : Advanced Agronomy

Course Objectives:

1. To provide in-depth knowledge of crop production principles and modern farming practices.
2. To understand the management of resources like water, soil, and nutrients efficiently.
3. To introduce students to precision farming, sustainable agriculture, and climate-resilient strategies.

Course Outcome:

By the end of this course, students are equipped to become Agronomists, Farm Managers, or Research Scientists capable of solving complex agricultural problems using scientific data and modern technology

Syllabus Content :-

Unit 1: Climate Smart Agronomy 20%

- 1.1 Climate Change and Crop Production
- 1.2 Carbon Sequestration
- 1.3 Green House Gas Mitigation
- 1.4 Resilient Cropping System

Unit 2 : Precision Agronomy and Digital Technology 20%

- 2.1 Remote Sensing
- 2.2 GIS / GPS Application
- 2.3 IOT Based Crop Monitoring
- 2.4 Drone Technology
- 2.5 Variable Rate Technology

Unit 3 : Conservation Agronomy and Resource Management 20%

- 3.1 Zero Minimum Tillage
- 3.2 Cover Cropping
- 3.3 Crop Residue Management
- 3.4 Water Use Efficiency

3.5 Micro Irrigation Advancing

Unit 4 : Sustainable Cropping System and Agroecology

20%

4.1 Crop Diversification

4.2 Intercropping Science

4.3 Agro forestry System

4.4 Cover Crop Based Rotation

4.5 Biodiversity and Pollinator Management

Unit 5 : Natural and Biological Agronomy

20%

5.1 Soil Health and Microbial ecology

5.2 Bio fertilizer

5.3 Composting Technology

5.4 Natural Farming Principles

5.5 Certification Standard

References:

1. Principles of Agronomy by S.R. Reddy
2. Modern Techniques of Raising Field Crops by Chhidda Singh
3. Weed Management by U.S. Walia
4. Precision Farming by K.R. Krishna
5. Irrigation Agronomy by S.R. Reddy
6. A Handbook of Rural Studies by Dr. K. R. Bharad

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Minor - 7		Horticulture & Forestry	4+0	50	50	100	2 Hrs.

Course Title : Production Technology of Fruit Crops

Course Outcomes :

Ideally, this course transforms students into skilled professionals capable of managing commercial orchards, working in fruit nurseries, or serving as agricultural extension officers with specialized knowledge in pomology (fruit science).

Course Objectives:

- 1) Students get knowledge about recent production Technology of fruit crops
- 2) To know the principle of production so useful in progressive Farming
- 3) Create self employment source

Syllabus Content :

Unit-1 Important pest and its management in fruit crops such as Mango, Banana, Coconut and Guava	20%
Unit-2 Organic farming and its importance in Horticulture crops	20%
Unit-3 Diseases management in fruit crops such as Mango, Coconut, Guava, Banana	20%
Unit-4 Cultivation of new fruit crops in Gujarat such as fig and oil palm	20%
Unit-5 Cultivation of new crops in Gujarat e.g. vanilla and cashew nut	20%

Suggested Readings / Reference Books:

1. FAL ANE FUL (GUJRATI EDITION MARCH-2015)—G.A.U.JUNAGADH
2. FALPAKO (GUJRATI EDITION MARCH-2013) G.A.U. JUNAGADH
3. FALVISHESHANK (GUJRATI EDITION)-G.A.U. ANAND

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Minor - 7		Animal Husbandry	4+0	50	50	100	2 Hrs.

Title : Advance in Animal Genetics and Breeding

Course Objectives & Learning Outcomes

1. To understand the underlying truth of heritability and Application
2. To know the importance of Breeding for important of Animals
3. To get familiar with selection methods and to apply in Practice
4. To understand the importance of reproduction in profitability of Animal Husbandry
5. To know various reproductive problem and how to overcome from them

Course Content:

Unit 1 : Animal selection and Type of selection **20%**

Unit 2 : History of Animal Breeding and methods of Breeding and their merits and demerits. **20%**

Unit 3 : Mechanism of female reproduction **20%**
3.1 Gametogenesis : Orgenesis, Spermatoginesis

Unit 4 : Estrus Cycle and Hormones related to reproduction **20%**

Unit 5 : Genetics and law of Inheritance mendels experience on **20%**

References:

1. Pashu Sanvardhan – R.K. Shukal
2. Pashu Vyavstha – Arun D. Dave
3. Vyaruhary Gopalan – Krushnlal Shukal
4. A text book of Animal Husbandry – G.C. Baneerji
5. A Hand book of Animal Husbandry , by ICAR New Delhi
6. Animal Genetics and Breeding by BAIF

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Minor – 7		Rural Extension	4+0	50	50	100	2 Hrs.

Course Title : RURAL DEVELOPMENT - 1

Course Objectives

- 1) Explain the history of rural development and provide information on various programs.
- 2) Develop an understanding of the organizations working at the local level.
- 3) Provide information about various schemes for agricultural and animal husbandry development.

Course Outcomes:

- 1) Explain the history of rural development and get information on various programs.
- 2) Develop an understanding of the organizations working at the local level.
- 3) To get information about various schemes for agricultural and animal husbandry development.

Course Content :-

Unit 1: History of rural development in India after independence. Objectives in rural development programs and work done for rural development. 20%

Unit 2: Introduction and functions of various organizations working for rural development. (DRDA, Co-operative Bank, Co-operative Societies). 20%

Unit 3: Credit and subsidy assistance for individual development and community development. 20%

Unit 4: Various schemes for agricultural development and animal husbandry development. 20%

Unit 5: Participation, field of work, and activities of voluntary organizations (NGOs) in rural development. 20%

References:

- 1) Rural Social Institutions of India (ભારતની ગ્રામીણ સામાજિક સંસ્થાઓ)

Author: Shah and Joshi (શાહ અને જોષી)

- 2) Agricultural Economics (કૃષિ અર્થશાસ્ત્ર)

Author: Mahesh Joshi (મહેશ જોષી)

- 3) Rural [Development] of India (ભારતનું ગ્રામીણ...)

Author: Babulal (બાબુલાલ)

Name of Course	Sem.	DSC/ DSE/ SEC/ OJT/ Dissertation / RP	Subject Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	Minor – 7		Reproduction in Farm Animal	4+0	50	50	100	2 Hrs.

Title : Reproduction in Farm Animal

Course Objectives:

1. To understand fertilization and Implantation.
2. To understand fetal Development and parturition to understand the basic mechanism of reproduction.
3. To understand how reproduction is involved in animal production.
4. To understand estrus cycle.

Course Outcome:

1. To get fertilization and Implantation.
2. To get fetal Development and parturition to understand the basic mechanism of reproduction.
3. To get how reproduction is involved in animal production.
4. To get estrus cycle.

Syllabus Content :-

Unit: 1 Reproductive System 20%

- Female Reproductive System: Organs.
- Male Reproductive System: Organs.

Unit: 2 Hormones related to Reproduction 20%

Unit: 3 Estrus Cycle and Ovulation 20%

Unit: 4 Artificial Insemination 20%

- History of A.I., Merits and Demerits.

Unit : 5. Steps of A.I. Semen Collection, evaluation, dilution & storage of semen, and methods of A.I. 20 %

References:

- 1) Pashu Samvardhan – K.R. Shukla
- 2) Pashu Vyavastha – Arun D. Dave
- 3) Principles and Practices of Dairy Farm Management – Jagdish Pradhan
- 4) Animal Genetics and Breeding – B.A.I.F.
- 5) A Handbook of Animal Husbandry – ICAR - New Delhi

Faculty: - Rural Studies

Name of Course	Sem.	DSC/ DSE/ MDC/ SEC/ AEC/ VAC/ OJT	Course Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	OJT-701		Agronomy	0+6	75	75	150	

Note: Rules & Regulation for OJT Evaluation subject to change as per SOP of Bhakta Kavi Narsinh Mehta University & HEI of Govt. of Gujarat

Title: - Agronomy (Major/Core Subject)**Course Requirements:**

1. Core specific On Job Training (OJT) would comprise of 180 hours.
2. Students are required to be placed in the institutions, organizations, farmer's field, Co-operatives, Gau Shala, NGO's, Financial Institutions, Agro based business Centres, Value addition centres, Packaging-Marketing centres, excellence centres etc. relevant to their Core course.
3. Students are mandatorily required to prepare a Diary of their day to day activities during the OJT.
4. At the end of the OJT, students are required to obtain a confidential Feed Back Report from the Head of the Institution or Mentor of the training program of the institution.
5. The confidential Feed Back Report is to be submitted to the Course Teacher of the college.
6. A full attendance during the OJT/ training program is compulsory unless a special leave permission granted by the principal of the college.
7. The student has to obtain a completion certificate for OJT/ Internship/ Apprenticeship programme on the letter head of company/institute. The specimen of the certificate is given below.

Evaluation Method:

1. Continuous Comprehensive Evaluation(CCE): 75 Marks

(i): 30 Marks for day to day report writing (Diary) of internship program.

(ii): 30 Marks based on the confidential Feed Back Report received from the Head/ Coordinator of the Institution where placed

(iii): 15 Marks based on the attendance of the student at the institution where placed for Internship

2. Semester End Evaluation(SEE): 75 Marks

- (i) 50 Marks for the Viva Voce evaluation conducted by the Course teacher
- (ii) 25 Marks based on the Diary prepared during the internship program and overall behaviour, enthusiasm, performance of the students.

Specimen of Completion Certificate

કંપની નું લેટર હેડ

રવાના

આઈ ડી. નંબર

OJT/ઇન્ટર્નશીપ પૂર્ણતા પ્રમાણપત્ર

આથી પ્રમાણિત કરવામાં આવે છે કે શ્રી.....D/o, W/o, S/o..... એ.....(DD/MM/YY) થી.....(DD/MM/YY) દરમિયાન..... (તાલીમ નું સ્થળ)..... (કંપની નું નામ અને એડ્રેસ) દ્વારા આયોજિત તેમજ..... (સંસ્થા નું નામ) દ્વારા સુવિધા આપવામાં આવેલ..... (કોર્સનામ) માટે..... ગ્રેડ સાથે સફળતાપૂર્વક નોકરી/ઇન્ટર્નશીપ/એપ્રેન્ટીસશીપ તાલીમ અભ્યાસ પૂર્ણ કર્યો છે.

દ્વારા પ્રમાણિત:

(કંપની નું નામ)

સહી અને સિક્કો

(હોદ્દો)

પ્રદર્શન માટે ગ્રેડિંગ નીચે મુજબ છે :

ગ્રેડO- ઉત્કૃષ્ટ(આઉટસ્ટેન્ડિંગ)

ગ્રેડA+- ઉત્તમ (એક્સેલેન્ટ)

ગ્રેડA- ખૂબ સારું (વેરીગુડ)

ગ્રેડB+ - સારું(ગુડ)

Faculty: - Rural Studies

Name of Course	Sem.	DSC/ DSE/ MDC/ SEC/ AEC/ VAC/ OJT	Course Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	OJT-701		Horticulture & Forestry	0+6	75	75	150	

Note: Rules & Regulation for OJT Evaluation subject to change as per SOP of Bhakta Kavi Narsinh Mehta University & HEI of Govt. of Gujarat

Title: - Horticulture& Forestry (Major/Core Subject)**Course Requirements:**

1. Core specific On Job Training (OJT) would comprise of 180 hours.
2. Students are required to be placed in the institutions, organizations, farmer's field, Co-operatives, Gau Shala, NGO's, Financial Institutions, Agro based business Centres, Value addition centres, Packaging-Marketing centres, excellence centres etc. relevant to their Core course.
3. Students are mandatorily required to prepare a Diary of their day to day activities during the OJT.
4. At the end of the OJT, students are required to obtain a confidential Feed Back Report from the Head of the Institution or Mentor of the training program of the institution.
5. The confidential Feed Back Report is to be submitted to the Course Teacher of the college.
6. A full attendance during the OJT/ training program is compulsory unless a special leave permission granted by the principal of the college.
7. The student has to obtain a completion certificate for OJT/ Internship/ Apprenticeship programme on the letter head of company/institute. The specimen of the certificate is given below.

Evaluation Method:

1. Continuous Comprehensive Evaluation (CCE): 75 Marks

(i): 30 Marks for day to day report writing (Diary) of internship program.

(ii): 30 Marks based on the confidential Feed Back Report received from the Head/ Coordinator of the Institution where placed

(iii): 15 Marks based on the attendance of the student at the institution where placed for Internship

2. Semester End Evaluation (SEE): 75 Marks

- (i) 50 Marks for the Viva Voce evaluation conducted by the Course teacher
- (ii) 25 Marks based on the Diary prepared during the internship program and overall behaviour, enthusiasm, performance of the students.

Specimen of Completion Certificate

કંપની નું લેટર હેડ

રવાના

આઈ ડી. નંબર

OJT/ઇન્ટર્નશીપ પૂર્ણતા પ્રમાણપત્ર

આથી પ્રમાણિત કરવામાં આવે છે કે શ્રી.....D/o, W/o, S/o..... એ.....(DD/MM/YY) થી.....(DD/MM/YY) દરમિયાન..... (તાલીમ નું સ્થળ)..... (કંપની નું નામ અને એડ્રેસ) દ્વારા આયોજિત તેમજ..... (સંસ્થા નું નામ) દ્વારા સુવિધા આપવામાં આવેલ..... (કોર્સનામ) માટે..... ગ્રેડ સાથે સફળતાપૂર્વક નોકરી/ઇન્ટર્નશીપ/એપ્રેન્ટીસશીપ તાલીમ અભ્યાસ પૂર્ણ કર્યો છે.

દ્વારા પ્રમાણિત:

(કંપની નું નામ)

સહી અને સિક્કો

(હોદ્દો)

પ્રદર્શન માટે ગ્રેડિંગ નીચે મુજબ છે :

ગ્રેડ O- ઉત્કૃષ્ટ(આઉટસ્ટેન્ડિંગ)

ગ્રેડ A+- ઉત્તમ (એક્સેલેન્ટ)

ગ્રેડ A- ખૂબ સારું (વેરીગુડ)

ગ્રેડ B+ - સારું(ગુડ)

Faculty: - Rural Studies

Name of Course	Sem.	DSC/ DSE/ MDC/ SEC/ AEC/ VAC/ OJT	Course Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	OJT-701		Animal Husbandry	0+6	75	75	150	

Note: Rules & Regulation for OJT Evaluation subject to change as per SOP of Bhakta Kavi Narsinh Mehta University & HEI of Govt. of Gujarat

Title: - Animal Husbandry (Major/Core Subject)**Course Requirements:**

1. Core specific On Job Training (OJT) would comprise of 180 hours.
2. Students are required to be placed in the institutions, organizations, farmer's field, Co-operatives, Gau Shala, NGO's, Financial Institutions, Agro based business Centres, Value addition centres, Packaging-Marketing centres, excellence centres etc. relevant to their Core course.
3. Students are mandatorily required to prepare a Diary of their day to day activities during the OJT.
4. At the end of the OJT, students are required to obtain a confidential Feed Back Report from the Head of the Institution or Mentor of the training program of the institution.
5. The confidential Feed Back Report is to be submitted to the Course Teacher of the college.
6. A full attendance during the OJT/ training program is compulsory unless a special leave permission granted by the principal of the college.
7. The student has to obtain a completion certificate for OJT/ Internship/ Apprenticeship programme on the letter head of company/institute. The specimen of the certificate is given below.

Evaluation Method:

1. Continuous Comprehensive Evaluation (CCE): 75 Marks

(i): 30 Marks for day to day report writing (Diary) of internship program.

(ii): 30 Marks based on the confidential Feed Back Report received from the Head/ Coordinator of the Institution where placed

(iii): 15 Marks based on the attendance of the student at the institution where placed for Internship

2. Semester End Evaluation (SEE): 75 Marks

- (i) 50 Marks for the Viva Voce evaluation conducted by the Course teacher
- (ii) 25 Marks based on the Diary prepared during the internship program and overall behaviour, enthusiasm, performance of the students.

Specimen of Completion Certificate

કંપની નું લેટર હેડ

રવાના

આઈ ડી. નંબર

OJT/ઇન્ટર્નશીપ પૂર્ણતા પ્રમાણપત્ર

આથી પ્રમાણિત કરવામાં આવે છે કે શ્રી.....D/o, W/o,
S/o..... એ.....(DD/MM/YY)
થી.....(DD/MM/YY) દરમિયાન..... (તાલીમ
નું સ્થળ)..... (કંપની નું નામ અને એડ્રેસ) દ્વારા આયોજિત
તેમજ..... (સંસ્થા નું નામ) દ્વારા સુવિધા આપવામાં આવેલ.....
(કોર્સનામ) માટે..... ગ્રેડ સાથે સફળતાપૂર્વક નોકરી/ઇન્ટર્નશીપ/એપ્રેન્ટીસશીપ તાલીમ
અભ્યાસ પૂર્ણ કર્યો છે.

દ્વારા પ્રમાણિત:

(કંપની નું નામ)

સહી અને સિક્કો

(હોદ્દો)

પ્રદર્શન માટે ગ્રેડિંગ નીચે મુજબ છે :

ગ્રેડ O- ઉત્કૃષ્ટ(આઉટસ્ટેન્ડિંગ)

ગ્રેડ A+- ઉત્તમ (એક્સેલેન્ટ)

ગ્રેડ A- ખૂબ સારું (વેરીગુડ)

ગ્રેડ B+ - સારું(ગુડ)

Faculty: - Rural Studies

Name of Course	Sem.	DSC/ DSE/ MDC/ SEC/ AEC/ VAC/ OJT	Course Code	Course Title	Credits	CCE	SEE	Total Marks	SEE Duration
B.R.S.	7	OJT-701		Rural Extension	0+6	75	75	150	

Note: Rules & Regulation for OJT Evaluation subject to change as per SOP of Bhakta Kavi Narsinh Mehta University & HEI of Govt. of Gujarat

Title: - Rural Extension (Major/Core Subject)**Course Requirements:**

1. Core specific On Job Training (OJT) would comprise of 180 hours.
2. Students are required to be placed in the institutions, organizations, farmer's field, Co-operatives, Gau Shala, NGO's, Financial Institutions, Agro based business Centres, Value addition centres, Packaging-Marketing centres, excellence centres etc. relevant to their Core course.
3. Students are mandatorily required to prepare a Diary of their day to day activities during the OJT.
4. At the end of the OJT, students are required to obtain a confidential Feed Back Report from the Head of the Institution or Mentor of the training program of the institution.
5. The confidential Feed Back Report is to be submitted to the Course Teacher of the college.
6. A full attendance during the OJT/ training program is compulsory unless a special leave permission granted by the principal of the college.
7. The student has to obtain a completion certificate for OJT/ Internship/ Apprenticeship programme on the letter head of company/institute. The specimen of the certificate is given below.

Evaluation Method:

1. Continuous Comprehensive Evaluation (CCE): 75 Marks

(i): 30 Marks for day to day report writing (Diary) of internship program.

(ii): 30 Marks based on the confidential Feed Back Report received from the Head/ Coordinator of the Institution where placed

(iii): 15 Marks based on the attendance of the student at the institution where placed for Internship

2. Semester End Evaluation (SEE): 75 Marks

- (i) 50 Marks for the Viva Voce evaluation conducted by the Course teacher
- (ii) 25 Marks based on the Diary prepared during the internship program and overall behaviour, enthusiasm, performance of the students.

Specimen of Completion Certificate

કંપની નું લેટર હેડ

રવાના

આઈ ડી. નંબર

OJT/ઇન્ટર્નશીપ પૂર્ણતા પ્રમાણપત્ર

આથી પ્રમાણિત કરવામાં આવે છે કે શ્રી.....D/o, W/o, S/o..... એ.....(DD/MM/YY) થી.....(DD/MM/YY) દરમિયાન..... (તાલીમ નું સ્થળ)..... (કંપની નું નામ અને એડ્રેસ) દ્વારા આયોજિત તેમજ..... (સંસ્થા નું નામ) દ્વારા સુવિધા આપવામાં આવેલ..... (કોર્સનામ) માટે..... ગ્રેડ સાથે સફળતાપૂર્વક નોકરી/ઇન્ટર્નશીપ/એપ્રેન્ટીસશીપ તાલીમ અભ્યાસ પૂર્ણ કર્યો છે.

દ્વારા પ્રમાણિત:

(કંપની નું નામ)

સહી અને સિક્કો

(હોદ્દો)

પ્રદર્શન માટે ગ્રેડિંગ નીચે મુજબ છે :

ગ્રેડ O- ઉત્કૃષ્ટ(આઉટસ્ટેન્ડિંગ)

ગ્રેડ A+- ઉત્તમ (એક્સેલેન્ટ)

ગ્રેડ A- ખૂબ સારું (વેરીગુડ)

ગ્રેડ B+ - સારું(ગુડ)