



ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

Model syllabus for 4- Year UG Honours in B.vocational (Dairy and Animal Husbandry) as Major in consonance with curriculum framework w.e.f.AY2025-26

COURSE STRUCTURE (FOR SEMESTER I to VIII)

Year	Semester	Course	Title of the course	No. of hrs/ week	No. of credits
I	I	1	Dairy Husbandry management production and dairy design & dairy development (Theory)	3	3
			Dairy Husbandry management production and dairy design & dairy development (Practical)	2	1
		2	Indian milk dairy products (Theory)	3	3
			Indian milk dairy products (practical)	2	1
	II	3	Bio-chemistry and physical chemistry of milk (theory)	3	3
			Bio-chemistry and physical chemistry of milk (Practical)	2	1
		4	Dairy plant management (theory)	3	3
			Dairy plant management (Practical)	2	1
II	III	5	Milk and milk products Technology (theory)	3	3
			Milk and milk products Technology (practical)	2	1
		6	Basic of animal nutrition(theory)	3	3
			Basic of animal nutrition (practical)	2	1
		7	Fodder production and conservation(theory)	3	3
			Fodder production and conservation (practical)	2	1
	IV	8	Veterinary physiology (theory)	3	3
			Veterinary physiology (practical)	2	1
		9	Laboratory Diagnostic & Techniques (theory)	3	3
			Laboratory Diagnostic & Techniques (practical)	2	1
		10	Veterinary Gynacology & AI(Artificial insimination)(theory)	3	3
			Veterinary Gynacology & AI (Artificial insimination) (practical)	2	1

G. Srinivas

Department of Zoology
Govt. Degree & F.G. College of Women

III	V	II	Veterinary pharmacology (theory)	3	3	
			Veterinary pharmacology (practical)	2	1	
		12	Meat production and meat abattoir management(theory)	3	3	
			Meat production and meat abattoir management (practical)	2	1	
		13	Veterinary immunology & Vaccinations (Theory)	3	3	
			Veterinary immunology & Vaccinations (practical)	2	1	
	VI	14	Basics of Veterinary surgery (Theory)	3	3	
			Basics of Veterinary surgery (Practical)	2	1	
		15	Poultry farm management and production (theory)	3	3	
			Poultry farm management and production (practical)	2	1	
	IV	VII	16	Basics of veterinary anatomy(theory)	3	3
				Basics of veterinary anatomy (practical)	2	1
17			Dairy farm general management (theory)	3	3	
			Dairy farm general management (practical)	2	1	
18			Cattle feed mixing plant (theory)	3	3	
			Cattle feed mixing plant (practical)	2	1	
19			Animal genetics and breeding (theory)	3	3	
			Animal genetics and breeding (practical)	2	1	
20			Fundamental of veterinary medicine (theory)	3	3	
			Fundamental of veterinary medicine (practical)	2	1	
VIII			21	Milk production management Dairy plant Design and Dairy development (theory)	3	3
				Milk production management Dairy plant design and Dairy development (practical)	2	1
		22	Animal birth control programme (theory)	3	3	
			Animal birth control programme (practical)	2	1	
		23	Principles of Dairy chemistry and Dairy microbiology (theory)	3	3	
			Principles of Dairy chemistry and Dairy microbiology(practical)	2	1	
		24	Livestock production and management (theory)	3	3	
			Live stock production and management (practical)	2	1	
		25	Dairy economic and marketing (theory)	3	3	
			Dairy economic and marketing (practical)	2	1	

III	5	Milk and milk products Technology (theory)	3	3
		Milk and milk products Technology (practical)	2	1
	6	Basic of animal nutrition(theory)	3	3
		Basic of animal nutrition (practical)	2	1
	7	Fodder production and conservation(theory)	3	3
		Fodder production and conservation (practical)	2	1

SECOND YEAR - SEMESTER III
COURSE 1: MILK AND MILK PRODUCT TECHNOLOGY

Theory

credits-3

3hrs/week

LEARNING OUTCOMES

After completion of course, student is able to

1. Maintaining hygiene, performing quality tests, operating processing equipment
2. Producing a variety of dairy products like butter, ghee, cheese, and ice creams.
3. Students will also learn to apply food safety standard such as GMP and HACCP.
4. Manage raw materials, package products, and handle dairy waste.

UNIT – I

9hrs

Milk industry in India, milk processing unit and its management Composition & Nutritive value of milk Factors effecting composition of milk Physical – chemical properties of milk

UNIT– II

9hrs

Collection, chilling of milk Standardization of milk – pasteurization, homogenization, bacto-fixation, dehydration of milk

UNIT– III

9hrs

Introduction to functional milk products .

Preparation of cream, butter, paneer or chana, Ghee, Khoa, Lassi, dahi, ice-cream, mozzarella cheese and dairy by products. Common defects of milk products and their remedial measures

UNIT – IV

9hrs

Packaging, transportation, storage and distribution of milk and milk products . Good manufacturing practices and implementation of HACCP in milk plant. Organic milk products .

UNIT– V

9hrs

Food safety standards for milk and milk products .

MODEL QUESTION PAPER

Course: B. Voc Dairy & Animal Husbandry

MILK AND MILK PRODUCTS TECHNOLOGY

Time: 3 hours

Marks: 75

SECTION – A

Answer any five of the following questions each question carries equal marks 5x3=15

1. Composition and nutritive value of milk
2. What are the key factors affecting the composition of milk
3. Chilling milk
4. What is standardization in milk processing and why is it important
5. Paneer preparation and its common uses
6. What are the common defects in milk products and how can they be remedied
7. What are the key considerations for the packaging of milk products
8. HACCP in milk processing plants
9. What are organic milk products and how do they differ from conventional products
10. Food safety standards for milk products

SECTION-B

Answer all questions each question carries equal marks 5x12=60

11. a) Discuss the milk industry in India and the management of milk processing units
(OR)
b) Explain the physicochemical properties of milk
12. a) Describe the processes of pasteurization and homogenization in milk processing
(OR)
b) What is the significance of dehydration in milk processing
13. a) Write a detailed note on the preparation of cream butter and ghee
(OR)
b) Discuss the functional milk products available in the market and their benefits
14. a) Describe the steps involved in the transportation and distribution of milk products
(OR)
b) What are the best practices for storage of milk and milk products
15. a) Explain the importance of good manufacturing practices in milk processing
(OR)
b) What are the key food safety standards for milk as per regulatory bodies?

SEMESTER- III
Course 6: BASICS OF ANIMAL NUTRITION

Theory **credits-3** **3hrs/week**

LEARNING OUTCOMES

After completion of course, student is able to

1. Being able to define basic nutrition terms.
2. Discuss how to measure nutrient content.
3. Describe the different types of digestion (e.g., ruminant vs. Non -ruminant)
4. Understand how proper nutrition impacts an animal's health welfare, and productivity.

UNIT -I 9hrs

Importance of Nutrition- Common Definitions in Animal Nutrition – Classification of Nutrients

Role of Different Nutrients in the body systems –Water –Carbohydrates –Proteins –Fats – Minerals –Vitamins .

UNIT -II 9hrs

Special consideration in the Nutrition of different livestock species – Ruminants – Non – ruminants – Poultry .

Carbohydrates –sugars –soluble carbohydrates

Energy – Gross energy –Digestible energy –Meta boilable energy – Net energy

UNIT -III 9 hrs

Proteins in Animal Nutrition – True protein and crude protein –Amino acids –Essential and Non-Essential Amino Acids –Biological values Lipid nutrition –essential fatty acids .

UNIT -IV 9hrs

Minerals in Animal Nutrition –Major minerals –Minor minerals Vitamins –Fat Soluble vitamins –Water soluble vitamins –Roles, deficiency symptoms and sources of vitamins .

UNIT -V 9hrs

Compound feeds –Feed supplements –Feed Additives .General considerations while Feeding of various species for livestock products- Dairy cattle and buffaloes –Sheep and Goat –Pigs –Poultry.

SEMESTER-III
Course 6: BASICS OF ANIMAL NUTRITION

practical credits-1 2hrs/week

1. General acquaintance of various equipment in nutrition laboratory –Hot air oven- Kelda Digestion and Distillation Unit-Sox let Apparatus-Muffle furnace .
- 2..Estimation of various proximate principles in feed-Moisture -Crude protein -Ether extract -Crude fiber -Total Ash .
- 3.Estimation of Acid Insoluble Ash -Calcium -Phosphorus -Detection of common adulterants in feeds .
- 4.Feed formulation -Ration formulation -practical exercises
- 5.Visit to Cattle feed plant and Poultry feed plant .

Reference books;

- 1.Principles of animal Nutrition and feed technology D.V. Reddy
- 2.Principles and practices of animal nutrition Jag dish Prasad
- 3.A textbook of animal nutrition D.N. varma,, kalyani
- 4.Basic animal nutrition and feeding, Pond, Wiley
- 5.Animal nutrition Maynard
- 6.Principles of animal nutrition and feeds BANERJEE

MODEL QUESTION PAPER

course: B.Voc Dairy & Animal Husbandry

BASICS OF ANIMAL NUTRITION

Time: 3 hours

Marks: 75

SECTION – A

Answer any five of the following questions each question carries equal marks 5X3=15

1. Define nutrition and explain its importance in animal health
2. Classify nutrients and explain their role in animal body systems
3. Discuss the significance of carbohydrates in animal nutrition
4. What is gross energy and how is it different from net energy
5. Explain the role of amino acids in animal nutrition
6. Define true protein and crude protein and describe their importance in animal feed
7. Write a short note on the functions of water-soluble vitamins
8. What are the deficiency symptoms of fat-soluble vitamins in animals
9. Define feed additives and their role in animal nutrition
10. Discuss the nutritional needs of dairy cattle in livestock production

SECTION-B

Answer all question each question carries equal marks

5X12=60

11. a) Discuss the classification of nutrients with examples .
(OR)
b) Explain the role of proteins and carbohydrates in the animal body
12. a) Write a detailed note on the nutritional considerations from ruminants and non-ruminants
(OR)
b) Explain the concept of metabolizable energy and its relevance in animal nutrition
13. a) Describe the different types of amino acids and explain the significance of essential amino acids
(OR)
b) Write a detailed note on lipid nutrition and essential fatty acids in animal diets
14. a) Discuss the role and sources of major minerals in animal nutrition
(OR)
b) Explain the deficiency symptoms and role of water-soluble vitamins in animal health
(OR)
15. a) Write a detailed note on compound feeds and supplements
(OR)
b) Discuss the nutritional needs of sheep and goats in livestock production

SEMESTER-III

COURSE 7: FODDER PRODUCTION AND CONSERVATION

Theory credit-3 3hrs/week

LEARNING OUTCOMES

After completion the course student able to

- 1.Developing the knowledge and skills necessary to ensure a steady and adequate supply of quality
- 2.Feed for livestock, thereby improving animal health productivity, and farm profitability.

UNIT-I 9 hrs

Importance of grasslands and fodder in livestock production

UNIT-II 9hrs

Important leguminous fodders in different seasons .

UNIT-III 9 hrs

Soil and water conservation and drainage of water for fodder production .Fodder production for small livestock units.

UNIT-IV 9 hrs

Structures for storage of feeds and fodders .
Scarcity fodder s and preservation of green fodder

UNIT-V 9hrs

Recycling of animal washings and wastes in fodder production and use of recycle waste .crop residues and their optimum utilization

MODEL QUESTION PAPER

Course: B. Voc Dairy & Animal Husbandry

FODDER PRODUCTION AND CONSERVATION

Time: 3 hours

Marks: 75

SECTION – A

Answer All of the following question

(5x3=15)

- 1 . What is live stock
- 2 . Mention some examples for leguminous fodders.
- 3 . Write about the fodder for small live stock.
- 4 . What are the best green fodder for cow.
- 5 . Explain about wheat straw as crop residue.
- 6 . What are grass lands fodders.
- 7 . Explain the uses of Rhizobium bacteria in fodder production.
- 8 . How is soil conservation done.
- 9 . Write about the methods of fodder storage.
- 10 . What are the uses of recycling of fodder waste

SECTION -B

Answer All of the following question

5x12=60

11. a) What is Fodder. Write about the differences between grass land feeds and fodder feeds.

(OR)

b) What are the agronomical practices usually followed for fodder production.

12 . a) Write about the non-leguminous fodders available to live stack.

(OR)

b) Classify leguminous fodder crops and write about its importance.

13 a) Write about the water conservation methods in fodder production.

(OR)

b) How is drainage water used for fodder production and what are the drainage treatment plans installed.

14 a) What are the reason for the cause of fodder scarcity and how are they tackled.

(OR)

b) Illustrate certain techniques for preservation of green fodder .

15 a) Describe the process of recycling of animal washing and write about its uses.

(OR)

b) Give an account on how to make optimum oxidization of crop residues.

W. O. I 2020-20 AT ONWARDS

***MINOR SUBJECTS* COURSE STRUCTURE**

Year	Semester	Course	Title	No of Hrs/Week	No of Credits
	III	1	Fundamental of Horticulture - (T)	3	3
			Fundamental of Horticulture – (P)	2	1

I. Learning Objectives: By the end of this course the learner has:

1. To realize the divisions and zones of Horticulture in india
2. To capable of planning new fruit orchard and able to produce new plantlets through various propagation methods.
3. To learn basic knowledge related to horticulture.

II. Learning Outcomes: On completion of this course students will be able to:

1. Understand the scope and potential of Horticulture products in India and Andhra Pradesh.
2. Illustrate different systems of planting in orchard and predict the number of plants in a given land.
3. Demonstrate the methods and types of training and pruning.
4. Explain sexual and asexual propagation methods of plants.
5. Demonstrate skills on vegetative propagation of plants.

III. Syllabus of Theory:

Unit-1: Introduction to Horticulture

9 Hrs.

1. Horticulture: Definition, importance and scope of horticulture.
2. Divisions of Horticulture with suitable examples and their importance.
3. Area and production of Horticultural crops in A.P. and India.
4. Horticulture zones of India and Andhra Pradesh.

Unit 2 : Characteristics of Orchards

9 Hrs.

1. Orchard: Definition, different systems of planting orchards – square, rectangular, Quincunx, hexagonal and contour.
2. Calculation of planting densities in different systems of planting.
3. Training: Definition, principles and objectives; merits and demerits of different methods of Training.
4. Pruning: Definition, principles and objectives: Different methods of pruning.

Unit-3: Plant propagation

9 Hrs.

1. Sexual propagation – advantages and disadvantages.

2. Seed germination, process of seed germination; factors affecting seed germination.
3. Asexual propagation – advantages and disadvantages.
4. Vegetative propagation by Bulbs, Corms, Tubers, Rhizomes, Stolons, Runners and Offsets.

Unit- 4 : Vegetative propagation techniques

9 Hrs.

1. Cuttings : Definition, methods of Cuttings.
2. Layering : Definition, methods of Layering.
3. Grafting : Definition; methods of Grafting.
4. Budding :Definition; methods of Budding.

Unit- 5 : Important Horticultural operations

9 Hrs.

1. Definition of Irrigation-Different methods of irrigation followed in horticultural crops.
2. Definition of manures and fertilizers-different methods of application of manures and fertilizers to horticultural crops.
3. Definition of mulch-objectives of mulching-different types of mulches-organic and inorganic mulches with suitable examples.
4. Cropping systems-inter cropping and multi-tier cropping, their merits and demerits with suitable examples.

I. Laboratory/field exercises:

1. Identification of various Horticulture crops.
2. Identification of various tools and implements in Horticulture.
3. Preparation of nursery beds for sowing of vegetable seeds.
4. Methods of breaking dormancy in seeds.
5. Growing Media for propagation of plants.
6. Brief account of plant propagation structures.

V. Suggested activities and evaluation methods:

A. Measurable:

a. Student seminars:

1. Importance, scope and statistics of horticulture in India and Andhra Pradesh
2. Branches or divisions of horticulture with suitable examples
3. Climatic zones of horticulture in India and Andhra Pradesh.
4. Systems of planting in an orchard
5. Types and methods of pruning in horticultural crops
6. Training methods in horticultural crops
7. Types of propagation methods (Asexual and sexual)
8. Cuttings – Types of cuttings
9. Layering – Types of Layering
10. Grafting – Types of grafting
11. Budding – Types of Budding

c. Student Study Projects:

1. Demonstrate different methods of planting systems
2. Collection of different soil samples of local area
3. Method of demonstration on mixing of fertilizer

4. Study of different tools and implements in horticulture
5. Demonstrate on different methods of Cuttings
6. Demonstrate on different methods of Layering
7. Demonstrate on different methods of Grafting
8. Demonstrate on different methods of Budding

d. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus. **B. General :**

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.