



## 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

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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	

II	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

## SEMESTER -IV

### COURSE 2: VETERINARY PHYSIOLOGY

Theory

credits-3

3hrs/week

#### LEARNING OUTCOMES

After completion of course ,student is able to

1. Understanding and applying knowledge of organ system functions (cardiovascular, renal, nervous , etc.).
2. Maintaining homeostasis. Integrating different body systems.
3. Interpreting physiological data, explaining normal and abnormal function.

5/18

#### UNIT – I

9 Hrs

Introduction to Blood ;Properties of blood as a body fluid , plasma , its functions , Erythropoiesis, factor influencing Erythropoiesis ; Hemoglobin – structure , physiological functions leucocytes , differential leucocyte count. Thrombocytes ,Hemorrhage , hemostasis . Blood groups.

#### UNIT– II

9 Hrs

Physiology of the gastrointestinal tracts of ruminants and monogastric animals prehension , defecation ; digestion. Esophagealgroove , rumination , fermentation.

#### UNIT– III

9 Hrs

Physiology of respiration and mechanics of breathing . Transport of blood gases ,fetal and neonatal oxygen transport . Physiology of excretory system , nephron structure , urine formation .

#### UNIT – IV

9 Hrs

Introduction and basics of endocrinology . Major endocrine glands and their hormones .Hormones and their action on different systems of the body.

#### UNIT– V

9 Hrs

Physiology of puberty . Physiology of reproduction in male , spermatogenesis . Physiology of reproduction in female ,folliculogenesis , ovulation , estrus cycles . Mating behavior , fertilization , parturition . Lactation



**SEMESTER-IV**  
**Course2: VETERINARY PHYSIOLOGY**

**Practical**

**credits-1**

**2hrs/week**

**6/18**

1. Collection of blood samples – separation of serum and plasma.
2. Enumeration of erythrocytes.
3. Enumeration of leucocytes.
4. Differential leucocytic count.
5. Platelet count.
6. Estimation of hemoglobin.
7. Hematocrit – erythrocyte sedimentation rate – packed cell volume – coagulation time – bleeding time.
8. Counting of rumen motility.
9. Urine analysis – physiological constituents and pathological determinates.
- 10 .Behavioral signs of estrus.
- 11 .Sperm motility.
- 12 . Sperm concentration – live and dead – abnormal sperm count.

**Reference books :**

- 1 . Text book of veterinary physiology Bradley klein, Elsevier
- 2 . Animal physiology M.Armugam , A. Mariakuttukam
- 3 . Physiology of domestic animals Dukes
- 4 . Text book of veterinary physiology B. Bhattacharya

**MODEL QUESTION PAPER**

course: B. Voc Dairy & Animal Husbandry

**VETERINARY PHYSIOLOGY**

**Time: 3 hours**

**Marks: 75**

**SECTION – A**

Answer all of the following question .Each question carries equal marks( 5x3=15)

- 1.leukocytes
- 2.Rumination
- 3.Hemoglobin
- 4.Fermentation
- 5.Parturition
- 6.Nepron
- 7.Neonatal oxygen transport
- 8.Pancreas
- 9.Spermatogenesis
- 10.Fertilization

**SECTION -B**

Answer all of the following question .Each question carries equal marks (5x12=60)

11. (a) How does serum differ from plasma and what are the functions of serum in relation to blood composition?

(OR)

(b) What is plasma and what role does it play in maintaining homeostasis and transporting essential substances throughout the body ?

12. a) Explain the physiological characteristics of the gastrointestinal tracts in ruminants and monogastric animals .

(OR)

b) Explain the process of prehension and defecation in animals

13. a) Explain the physiology of respiration .

(OR)

b) Discuss the transport of blood gases.

14. a) Discuss the effects of thyroid hormones on metabolism.

(OR)

b) Identify the major endocrine glands in the human body and describe the hormones they produce

15. a) Discuss the physiology of puberty.

(OR)

b) Explain the physiology of reproduction in females.

## SEMESTER-IV

### COURSE 9 : LABORATORY DIAGNOSTIC & TECHNIQUES

Theory \_\_\_\_\_ credits-3 \_\_\_\_\_ 3hrs/week

#### LEARNING OUTCOMES

After completion the course student able to

- 1.Ability to safely and correctly collect and process biological specimens, operate and maintain lab equipment
- 2.Perform routine and advanced tests, analyze and interpret results and apply scientific principles to solve problems and ensure quality control.

#### UNIT -I

9 hrs

Microscope and usage of different microscopes .  
Sterilization and methods of sterilization .

#### UNIT -II

9 hrs

Media – various ingredients used for preparation of culture media . Different media for bacterial and fungal culture varies stains and dyes use for diagnostic work different staining method

#### UNIT -III

9 hrs

Antigens and antibodies . serio diagnostic techniques used for identification of antigen/antibody.

#### UNIT -IV

9 hrs

Methods of preparation of permanent slides. Collection, preservation and dispatch of various materials for parasitological examinations .

#### UNIT -V

9 hrs

Examination of parasitic specimens . Examination of pathological specimens .  
Heamatology examinations . Biochemical analysis

## SEMESTER-IV

### Course 9 : LABORATORY DIAGNOSTIC & TECHNIQUES

Practical \_\_\_\_\_ credits -1 \_\_\_\_\_ 2-hrs/week

1. Identification of glass ware chemicals and laboratory equipment.
2. Preparation of normal and standard solutions .
3. Samples preparation for chemical analysis.
4. Preparation of slides for parasitic and pathological examinations.
5. Staining procedures for different specimens.
6. Collection and processing of specimens for clinical examination.
7. Clinical hematology .
8. Preparation of permanent slides and museum specimens.

#### Reference books:

1. Veterinary laboratory diagnosis Chauhan RS
2. Veterinary laboratory diagnosis Sriraman
3. Veterinary Technician's Handbook of Laboratory procedures Brainne Bellwood and Melissa Andrasik Catton , John Wiley
4. Veterinary Laboratory Medicine Clinical Biochemistry and Hematology Morag G . Kerr , John Wiley
5. Veterinary clinical diagnostic technology Prasad B

## MODEL QUESTION PAPER

course : B. Voc Dairy & Animal Husbandry

### LABORATORY DIAGNOSTIC & TECHNIQUES

Time: 3 hours

Marks: 75

#### SECTION – A

Answers any five of the following question . Each question carries equal marks 5X3=15

1. What are the different types of microscopes used in laboratory diagnostics ?
2. Define sterilization and list different sterilization methods ?
3. What are the main ingredients of culture media ?
4. Name different types of media used for bacterial culture
5. Define antigen and antibody with examples?
6. What is the principle sero-diagnostic technique?
7. What are the steps in preparing a permanent slide?
8. How should parasitological samples be collected and preserved ?
9. What are the common techniques used for the examination of parasitic specimens ?
10. How is a hematological examination performed in a diagnostic lab ?

#### SECTION –B

Answers All the question .Each question carries equal marks 5X12=60

11. a) Describe in detail the different types of microscopes their application in laboratory diagnostics

(or)

b) compare and contrast dry heat sterilization and moist heat sterilization

12.a) Explain the classification of culture media and their role in microbial growth

(or)

b) How do staining methods helping the identification of bacteria and fungi

13.a) Describe different sero – diagnostic techniques used for antigen /antibody identification

(or)

b)Discuss the principles and applications of ELISA and western blotting

14.a) Explain the procedure for preparing permanent slides for laboratory use

(or)

b) Discuss the importance of parasitological examination in veterinary diagnostics

15.a) Explain the different hematological techniques used for diagnosing diseases

(or)

b) discuss the significance of examination pathological in specimens in veterinary science

## SEMESTER-IV

### COURSE 10 : VETERINARY GYNOCOLOGY ,OBSTETRICS AND AI (Artificial insimulation)

Theory \_\_\_\_\_ credits-3 \_\_\_\_\_ 3hrs/week

#### LEARNING OUTCOMES

After completion the course student able to

- 1.Practical understanding of animal reproductive physiology.
- 2.The ability to diagnose and treat reproductive disorders.
- 3.Proficiency in assisted reproductive technologies like artificial insemination.

<b>UNIT-I</b>	9 hrs
Anatomy of Female and Male Reproductive tract of Livestock . Puberty and Sexual maturity .	
<b>UNIT-II</b>	9 hrs
Estrous Cycle and factors affecting the length of the estrous cycle – aberrations of estrus and their clinical management and problems in estrus detection and estrus Detection Aids .	
<b>UNIT-III</b>	9 hrs
Pathological affections of Ovary , Uterine tubes , Uterus , Cervix , Vagina and External Genitalia and male Genitalia .	
<b>UNIT-IV</b>	9 hrs
Pregnancy diagnosis – Duration of pregnancy – Factors affecting gestation length .	
<b>UNIT-V</b>	9 hrs
Care and management of pregnant animals . Stages of Parturition . Forms of Female and Male infertility in bovines . Artificial insemination Techniques in farms and pet animals .	

**COURSE 10: VETERINARY GYNOCLOGY , OBSTETRICS AND AI ( Artificial insimination)**

Practical \_\_\_\_\_ credit-1 \_\_\_\_\_ 2hrs/week

- 1.Study of female and male genital organs using slaughter house specimens Estrus detection in Farm animals
- 2.Techniques of rectal palpation of female reproductive tract gynecological equipment and instruments
- 3.Vaginalexfoliative cytology and vaginoscopy AI equipment and techniques
4. Vasectomy and castration
5. Handling and maintenance of LN2 containers

**Reference books :**

- 1 . Veterinary Obstetrics and genital diseases  
Stephen J. Raborts
- 2 . Applied veterinary gynecology and obstetrics Dr .Pradeep Kumar
- 3 . Veterinary reproduction and obstetrics  
Geoffrey H . Arthur
4. Veterinary Reproduction and obstetrics  
David .Noakes , Timothy J. Parkinson & Cary C. w.

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## MODEL QUESTION PAPER

COURSE : B. Voc Dairy & Animal Husbandry

VETERINARY GYNACOLOGY , OBSTETRICS AND AI (Artificial insimulation)

Time: 3 hours

Marks: 75

### SECTION - A

Answer ALL of the following. Each question carries equal marks 5X3=15

- 1 . What is the significance of puberty in livestock reproduction.
- 2 . Define the estrous cycle.
- 3 . List two common pathological conditions affecting the ovary in livestock.
- 4 . Mention one method used for pregnancy diagnosis in livestock.
- 5 . What are the key stages of parturition.
- 6 . Discuss the factors that affect the length of the oestrus cycle in livestock.
- 7 . Explain the clinical management of aberrations in oestrus.
- 8 . Describe the pathological affection of the uterus in livestock.
- 9 . Explain the factors that influence the gestation length in farm animal.
- 10 . Explain artificial insemination techniques used in farm animal.

### Section -B

Answer ALL of the following. Each question carries equal marks (5X12=60)

- 11 . A) Discuss the anatomy of the male reproductive tract in livestock.  
(OR)  
B) Explain the anatomy of the female reproduction track in livestock .
  - 12 . A) Discuss the factors affecting oestrus detection and the aids used for detecting oestrus in livestock.  
(OR)  
B) Explain the common aberrations of oestrus and their clinical management .
  - 13 . A) Describe the pathological affections of the cervix and their clinical implications .  
(OR)  
B) Discuss the pathological condition affecting male genitalia in livestock.
  - 14 . A) Explain the different methods of pregnancy diagnosis and their importance in livestock management  
(OR)  
B) Discuss the factors that can affect the gestation length in farm animals.
  - 15 . A) Discuss the care and management practices for pregnant animals.  
(OR)  
B) Discuss the forms and causes of females infertility in bovines and their management.
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II	IV	2	<b><i>MINOR SUBJECTS</i></b>		
			Basics of Vegetable Science – (T)	3	3
			Basics of Vegetable Science – (P)	2	1

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

1. To recognize the morphology of the various vegetable crops.
2. To acquire knowledge in cultivation of vegetable crops.
3. To acquire knowledge in identification of various pests and diseases of vegetable crops.

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

1. Distinguish the growing of vegetables according to season and climate
2. Get detailed knowledge on cultivation aspects of different vegetables
3. Understand and explain the special intercultural operations done in vegetable crops
4. Study of morphology and taxonomy of different vegetable crops
5. Study of different varieties of vegetable crops
6. Identify the diseases and pests of vegetable crops and their management

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**Syllabus of Theory:**

**Unit-1: Introduction to Vegetable crops**

**9 Hrs.**

- 1.Importance of vegetable cultivation in India and Andhra Pradesh.
- 2.Classification of vegetables.
- 3.Constraints in vegetable production and remedies to overcome them.

4.Vegetable Gardens

**Unit-2: Sub-tropical vegetables**

**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Brinjal (b) Tomato (c) Chilli (d) Okra (e) Cucurbits

**Unit-3: Temperate vegetables**

**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Cauliflower (b) Cabbage (c) Onion

**Unit-4: Tuber and Root crops**

**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Potato (b) Carrot (c) Beetroot (d) Tapioca

**Unit-5: Beans and leafy vegetables**

**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a)Cluster bean (b) Cow pea and (d) Dolichos bean (e) Coriander

**I. Laboratory/field exercises:**

1. Demonstration of seed germination test for a vegetable seed.
2. Demonstration of seed viability test.
3. Identification of vegetable seeds and vegetable crops at different growth stages.
4. Different Seed Sowing methods.
5. Canning and Dehydration of vegetables.
6. Cost of cultivation studies of locally grown vegetables

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**V. Suggested activities:**

**A. Measurable :**

**a. Student seminars :**

1. Production Technology of Solanaceous crops
2. Production Technology of Cucurbit Vegetables
3. Production Technology of Root and Tuber crops
4. Production Technology of Temperate crops
5. Production Technology of Leguminous crops
6. Special intercultural operations in vegetable crops
7. Major Pests and Diseases of vegetable crops and their management
8. Morphological characters of vegetable crops
9. Maturity and Harvesting indices of vegetable crops
10. Nutritional aspects of vegetable crops

**d. Student Study Projects:**

1. Identification and Herbarium preparation of different vegetable seeds
2. Identification and Herbarium preparation of disease symptoms of vegetable crops
3. Identification and Herbarium preparation of pest symptoms of vegetable crops

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4. Raising of vegetables in Nursery and portrays

**e. 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.
2. Visit to Horticulture University/ Research Station.
3. Visit to a vegetable nursery and vegetable crop field.