

# COURSE CONTENT FOR THEORY AND PRACTICAL FOR VLD DIPLOMA COURSE

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## INSTITUTE OF PARA VETERINARY SCIENCES



**Lala Lajpat Rai University**  
of Veterinary and Animal Sciences

लाला लाजपतराय पशु चिकित्सा एवं पशु विज्ञान विश्वविद्यालय

HISAR (HARYANA) - INDIA

## Course Content

### VLDD - I                      Introductory Anatomy of Domestic Animals, 1+1

#### **Theory VLDD – I**

Preparatory exposure of following topics-

Structure and classification of Cell and tissue.

Bone definition: Classification and general functions of bones, identification of different bones of axial and appendicular skeleton of ox only, study of joints, skin and appendages.

General awareness about smooth, cardiac and striated muscles.

Introductory anatomical structures of digestive system ox and horse: Mouth, tonsil, pharynx, oesophagus, ruminant and non-ruminant stomach, intestines and associated glands.

Brief introduction of respiratory structures of ox and horse: Nostril, nasal cavity, sinuses, pharynx, larynx, trachea, lungs, thorax and pleura.

General awareness about Circulatory system: heart, blood, arteries and veins, portal circulation, lymphatic system and blood cells.

Brief introduction of structures of excretory system: kidney and its structure, ureter, bladder, urethra, structure of nephron etc. of ox and horse.

Introduction to Nervous system: Brain, Spinal cord.

Introductory knowledge of structures of female genital system of cow and mare - ovary, uterine tube, uterus, vagina, vulva.

Introductory knowledge of anatomical structures of Male genital system of ox and horse - scrotum, testis, epididymis, ductus deferens, penis, accessory sex glands. Preliminary knowledge of Structure of teat and udder.

Skills for identification of species specific structure of livestock having clinical significance.

**Practical VLDD – I**

Practical knowledge only of following topics-

Organization of ox body.

Cells and tissues of ox body.

Introduction to body systems:

Introduction to bones of Thoracic limb, Pelvic limb bones. Bones and muscle of ox having clinical significance. Brief introduction to bones of Skull, axial skeleton, sternum, ribs, and trunk. Introduction of Cardiovascular system – heart and blood vessels of clinical importance.

Brief introduction to respiratory system, introduction to digestive system – simple and compound stomach.

Brief introduction to joints, skin, horn, hoof, and teeth.

Brief introduction to male/female genital system.

Brief introduction to urinary system. Salient differences (only 2) of bones of cattle with horse.

**VLDD - II Introductory Physiology of Domestic Animals, 1+1****Theory VLDD – II**

Basic theoretical coverage only of following topics-

General awareness about Physiology of Respiratory System: Functional structure of respiratory tract, functions of respiration, transport and exchange of gases.

Preliminary knowledge of Physiology of Digestive System: Functional structure of digestive system in various species of domestic animals, Introduction to pre-hension, mastication, swallowing, GIT movements, Introduction to digestion and absorption of carbohydrates, protein and lipids in ruminants and non-ruminants, Introduction to functions of liver, gall bladder and pancreas in digestion. Common awareness about Physiology of blood and cardiovascular System: Introduction to blood and its constituents with their functions, Functional structure of heart and introduction to blood circulation.

Introductory facts of Physiology of Excretory System: Functional structure of excretory organs in domestic animals, Introduction to formation and concentration of urine. Introduction to role of kidneys in regulation of body fluid volume and composition.

Introduction to CSF, Lymph and synovial fluid. Overview to functional structure of major endocrine glands in domestic animals.

Functions of hormones secreted from major endocrine glands in domestic animals. Nervous system: Introduction to functional structure and organization of the nervous system, function of nervous system. Introduction to sense organs concerned with vision, hearing, olfaction and skin. Introduction to functional structure of mammary gland/udder, Synthesis, secretion and let-down of milk, milk composition.

Muscular system: Introduction of functional structure of different muscles, functions of different muscles. Salient differentiating physiological features of equine and avian physiology in respect to different systems.

Students will acquire skill to enable assistance in recording normal physiological parameters.

## **Practical VLDD – II**

Practical exposure of following topics-

General precautions to be taken in physiology laboratory.

Labelling of samples in physiology laboratory.

Measurement of weight and growth in domestic animals.

Handling of microscope and other commonly used equipment in Veterinary Physiology Laboratory.

Collection of blood from domestic animals, Preservation of blood/plasma and use of anti-coagulants, Separation of plasma and serum from blood, Methods of collection of urine in domestic animals, Preservation of urine sample, Macroscopic and microscopic examination of urine, Methods of collection of rumen liquor, Measurement of ruminal movements, Recording of body temperature, Recording of respiration rate, Recording of heart/pulse rate.

**Theory VLDD - III**

Introductory coverage only of following topics-

Nutritional terms and their definitions. Introductory reference to Feeds and Fodder, Dry Roughages, Green Fodder, Ingredients of Concentrate, Feed Supplements, Additives, Non-Conventional Feed Resources, Agro Industrial by products, Tree Fodder. Role of Water, Carbohydrate, Lipid and Protein in Animal Nutrition. Requirements for maintenance, growth, reproduction, lactation, egg production, wool production and work/draft. Primary methods of Nutritional Evaluation of Feed. Initial Concept of green and dry fodders for kharif and rabi. Opening note on grasses, hay, haylage, silage, blocks, ammonification of straw, their classification, availability and importance for livestock and poultry production. Various physical, chemical and biological methods of feed processing for improving the nutritive value of inferior quality roughages. General understanding about preparation, storage and conservation of livestock feed through silage and hay and their uses in livestock feeding. Primary knowledge of Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed. Importance of vitamins in health and production, their requirements and supplementation in feed. General awareness about feed additives in the rations of livestock and poultry. Common principles of computation of rations. General statement about formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth, development and production (neonate, young, mature, pregnant, lactating, and dry animals; breeding bull and working animals). General account about formulation of ration and feeding of sheep during different phases of growth, development and production (milk, meat, and wool). Introductory knowledge of formulation of ration and feeding of goat during different phases of growth, development and production (milk, meat and hairs). Formulation of ration and feeding of poultry for egg production. Common account about balanced ration and its characteristics.

Outline of feeding of diseased animals. Introductory knowledge of Commonly used feed and forages for equines. Role of minerals and vitamins in equine feeding. Nutritional problems in equine. Skills to enable students to formulate ration for various species of animals including ruminants and non-ruminants. Hands on training in Feed Mill operations, compounding of feed and least cost feed formulations, reaspecific UMMB/feed blocks, proximate analysis of the various feed ingredients, the role of various nutrients viz. carbohydrate, protein, fat, mineral, vitamin on animal health and production.

Skill acquisition for guiding villagers regarding feed, fodder and cattle to increase milk yield, procurement of seeds for demonstration plots, for improvement of poor quality available feed fodder within reasonable cost.

### **Practical VLDD - III**

Basic hands-on exposure only of following topics

Familiarization of various feed stuffs and fodder and their selection (Kharif and Rabi), Demonstration of laboratory equipment. Silage preparation, Hay preparation, Identification of grasses, green fodder in kharif and rabi.

Identification of constituents of concentrate mixture, Ammonification of rice/wheat straw, Urea blocks preparation, storage, conservation of feed, preparation of mineral mixture, Identification of feed additives, Principles of computation of ration for ruminant and poultry, Sampling of feed analysis, Sampling of silage.

### **VLDD - IV                      Introduction to Livestock & Poultry Management,**

**2+1**

### **Theory VLDD - IV**

Preparatory exposure only of following topics

Taxonomy and classification of common domestic animals and brief livestock statistics. General definitions related to animal management.

Brief introduction of Breeds of different species (cattle, buffalo, sheep, goat, horse and pig).

Introduction to Care and management of animals (cattle, buffalo sheep, goat and swine) during and after parturition.

General Economic traits of dairy animals.

Care and management of calf, heifer, milch animals and breeding bulls. Skills in mother bull production.

Basic Housing systems of animals- loose and conventional housing systems, housing requirements of animals.

Basics of routine management practices like grooming, washing, dipping, casting, shearing and exercising.

Introduction of Raising and feeding of farm animals.

Classification of feed and fodder. Preservation of fodder.

Common Signs of health in different animals, isolation and quarantine, General Care of sick animals and prevention of disease.

Basic Milking management- various methods of milking, factors affecting quality and quantity of milk production.

Control of vices of dairy animals, equines; their prevention and control. Basic feeding and management of horses and camels.

General foot and hoof care in equines.

Introductory knowledge of management & breeding of horses and camels.

Outline of importance and scope of poultry farming. Outline of classification of various species of poultry. Elementary introduction to reproductive system and digestive system of fowl. Outline of Structure and composition of egg, Criteria for selection and care of hatchable eggs, Introductory knowledge of Incubation of eggs and basic hatchery management practices, Importance and steps involved in pedigree hatching. Basic knowledge of poultry housing. General aspects of poultry



feeding. Basics of Poultry brooding and management of chicks, Selection and culling of chickens. Debeaking of birds and its importance. General Management of growers and layers. General management practice during poultry diseases at farm, Prevention and control of poultry diseases. Maintenance of poultry records.

Skill related to different management practices in livestock and poultry at farm, gaushala &/or in farmers' courtyard, entrepreneurial skills for development of poultry farm.

### **Practical VLDD - IV**

Introductory practical exposure of following topics-

**Livestock:** Visit to various animal farms.

External body parts of different animals, Methods of approaching and handling animals (casting, lifting of hind leg, foreleg etc.).

General management practices followed in the farm (dipping, spraying, grooming, exercising, disbudding, castration, etc).

Methods of identification (branding, tagging, tattooing, ear notching, etc).

Determination of age in farm animals, Determination of body weight in dairy animals.

Familiarization with daily farm operations, Detection of vices and control measures.

Feeding of animals- Preservation of fodder, Milking of animals- methods of milking, Detection of heat in different species, Methods of recording temperature, pulse and respiration and First aid and methods of administration of medicine, Record keeping in the farm.

**Poultry:** Visit of poultry farm: Study of external body parts of birds and Handling and identification of birds, Study of the reproductive system of fowl, Study of the digestive system of fowl, Structure and composition of egg, Selection and care of hatch able eggs, Incubation of eggs and hatching of chicks, Pedigree hatching, Brooding and rearing of chicks, Debeaking of birds, Selection and culling of chickens, Poultry housing, Poultry feeding, Prevention and control of poultry diseases.



**Theory VLDD -V**

General exposure of following topics-

General terms used in animal breeding. Specific terms used for young one and adults of different species of livestock and poultry and terms used for the process of parturition of different species of livestock and poultry. Basics of Economic utility characters of different species of live-stock, equine and poultry (All the economic traits related to different species of livestock and poultry). General statement about basis of selection: Individual Selection, Pedigree Selection, Progeny testing, Family Selection. Introduction of Selection of a Breeding Bull and a Dairy Cow/Buffalo (What are the points that should be kept in mind while selecting a breeding bull and breed able cow/buffalo). Introductory understanding of Methods of selection: Tandem Method, Independent culling level method (ICL), Total score Selection index method. Importance of live-stock record keeping and various types of records. Purpose of record keeping, All the records maintained at animal and poultry farm. Elementary facts of breeding systems. Inbreeding and its types. Outbreeding and its different forms.

**Practical VLDD - V**

Foundation practical exposure only of following topics

Exposure will be given on following skills: Important breeds of live-stock (Cattle, buffalo, sheep, goat, swine and equine) and poultry, their origin distribution and breed characteristics. Recording of breeding data (How to record animal data related to production, reproduction and subjective traits). Animal Data Generation (How to generate data from history cum pedigree sheets). Estimation of Breeding Efficiency (Numerical related to breeding efficiency in cattle and buffalo by Wilcox and Tomar formulae). Estimation of Most Probable Production Ability (MPPA), (Numerical related to MPPA in cattle and buffalo). Selection differential, Herd

average and Wet average (Numerical related to Selection differential, Herd average and Wet average in cattle and buffalo). Numerical on Progeny Testing. Numerical on Heterosis.

**VLDD -VI                      English, 2+1**

**Theory VLDD - VI**

Text for Comprehension entitled 'The Pointed Vision' edited by Usha Bande and Krishan Gopal, Oxford Univ. Press, YMCA Library building, Jai Singh Road, New Delhi. Printed in India by De Unique, New Delhi - 110018

(Discussion and practice of questions of "The Bet", "The Gift of Magi", "The Post-Master", "The Three Questions", "The Refugee", "The Life of Ma Parker", "The Dying-Detective", "Under the Banyan Tree", "That Pagli", "Am I Blue").

Synonyms, Antonyms, Words often confused. Voice, Narration, Tense.

Letter Writing (e.g. Write an application on the following:

\*To the hostel warden to grant you a seat in the hostel as your home is out of the district and it is very difficult to travel all the day. Transportation problem and transportation cost is also very hard to bear for you.

\*To the editor about animal cruelty.

\*To M/S ABC Booksellers, Delhi, placing an order for books (Mention at least 4 titles of the books) to be supplied immediately.

\*To the Commissioner xyz city Corporation, complaining about the poor sanitary conditions and mosquito menace in your locality.

\*To the Principal of your institute for medical leave.

\*To the Principal of your institute for change of name, photo etc. in your identity card.

\*To the Principal of your institute for organizing a welcome /farewell party.

\*To the Principal of your institute for college leaving certificate.

\*To the Principal of your institute to get back your original documents.

\*To the Principal of your institute for issuance of character certificate, and you are Anuj/Anuja, a student of VLDD.

\*Write a letter to the librarian requesting him/her to issue you a duplicate library card as you have lost the original one).

Report Writing (150 words):

- 1) Pashu Mela
- 2) Animal care Clinic
- 3) Inauguration of a Veterinary Clinic.
- 4) Road Accident
- 5) Spread of a disease among animals
- 6) Village Panchayat Meeting

The basic purpose is to enhance skills in reading, writing, listening and speaking.

### **Practical VLDD – VI**

#### **Introductory practical exposure of following topics:**

Listening Comprehension, Reading Comprehension. Facing an Interview. Group Discussion. Public speaking: declamation, speech, elocution, extemporary, debate.

### **VLDD – VII**

### **Pharmacy, 3+1**

#### **Theory VLDD – VII**

History of Pharmacy. Definitions of terms: Pharmacology, pharmacy, chemotherapy, therapeutics, toxicology, posology, metrology, pharmacokinetics, pharmacodynamics. Name of various sources and nature of drugs with examples; Definition of various pharmaceutical processes; Compounding and dispensing of drugs having vehicle as water, alcohol, oil, honey etc.; Storage of drugs in pharmacy lab; Drug hazards and safety with respect to handling and storage of drugs.

Drug dosage forms. Routes of drug administration and their advantages and disadvantages - Enteral: oral, sublingual and per-rectum.

Topical/Local administration such as intranasal, intraocular, intra-auricular, intravaginal, intrauterine.

Parenteral routes such as intravenous, intramuscular, subcutaneous, intratracheal, intra-ruminal, intraperitoneal, epidural, intradermal.

Factors modifying drug effect and dose and examples of drug incompatibilities and drug interactions. Sites and basic principles of metabolism and excretion of drugs. Parts of prescription.

Definition and general properties of various classes of drugs acting on digestive system with examples: Stomachics; prokinetics; sialics-vegetable bitters such as quassia, gentian, chiretta; antisialics-atropine, hyoscine; digestive ferments such as malt, diastase, pepsin; Sweetening agents such as treacle, sucrose, lactose; gastric antacids; emetics- sodium chloride, copper sulphate, apomorphine; anti-emetics- metoclopramide, domperidone; antidiarrhoeals- astringents (tannic acid, catechu); demulcents, antibiotics; carminatives- clove oil, cardamom, asafoetida, anise; antifoaming agents; antifroathing agents; antifermentive agents; rumenototics; purgatives- castor oil, magnesium sulphate, Sodium sulphate, croton oil, linseed oil, aloe, etc.; laxatives.

Definition and general properties of various classes of drugs acting on urinary system with examples: diuretics, urinary alkalizers, urinary acidifiers.

Definition and general properties of various classes of drugs acting on cardiovascular system with examples: anti-coagulants; haemostatics; haematinics; vasoconstrictors.

Definition and general properties of various classes of drugs acting on respiratory system with examples: bronchodilators; expectorants (camphor, menthol); mucolytics, respiratory stimulants, therapeutic gases.

Definition and general properties of various classes of drugs acting on central nervous system with examples: Sedatives; tranquilizers; hypnotics; anaesthetics; opioid analgesics; nonsteroidal anti-inflammatory drugs, euthanizing agents.

Definition and general properties of various classes of drugs acting on skin and mucous membrane with examples: caustics and counter-irritants;

emollients and demulcents (olive oil, groundnut oil, cotton seed oil, mustard oil, coconut oil, liquid paraffin, glycerine, gum acacia); protectants; keratolytics; deodorants; astringents, antiseptics.

Definition and general properties of various types of anthelmintics. Examples of antihaemoprotozoan drugs.

Definition and general properties of various classes of drugs acting on reproductive system with examples: oxytocics and tocolytics.

Definition and examples of drugs acting as galactagogues, estrogens, progestogens and testosterone.

Name and general properties of vitamins and minerals acting as nutraceuticals.

Definition and general properties of various classes of drugs acting as antimicrobials with examples: antibiotics and other anti-bacterial and antifungals.

Definition and general properties of various classes of drugs acting as anti-inflammatory, antipyretics and analgesics with examples.

Antiseptics and disinfectants.

Bio-medical waste management in laboratory: General introduction, rules and regulations.

Concept of Ethno Veterinary Practices, ayurvedic and herbal drugs used in the treatment of animal diseases. Introduction of common indigenous medicinal plants/drugs: Ginger, aloe, satawari, allium, ocimum, neem, *Piper longum*, withania, leptadenia, tinospora, embilica, eucalyptus, glycyrrhiza, trichospermum, curcuma, moringa, tribulus, *Murraya koenigii*. Introduction of common toxic plants: Cyanogenetic plants, abrus, ipomoea, datura, ricinus, opium plant, calotropis, sorghum, bracken fern, congress grass, cannabis, nicotiana, lantana, gossypium, nerium, *Argemone mexicana*.

Skill developed in terms of basics of pharmacy for upkeep of various types of drugs in hospital used by veterinarian. Concept of ethno veterinary practices, identification of commonly used medicinal plants and identification of toxic plants. Compounding and dispensing of various pharmacy preparations.

**Practical VLDD – VII**

Preparatory practical exposure of following topics-

Identification of laboratory wares used in pharmacy laboratory.

Demonstration of instruments/ equipment used in pharmacy laboratory.

Metrology in pharmacy.

Numerical based on weight and measures.

Vehicle/ excipients for pharmacy preparations and drug administration.

Demonstration of compounding, dispensing and labelling of various drug dosage forms.

Demonstration of drug administration through different routes.

Reading and understanding prescription with various prototype examples.

Compounding and Dispensing of various pharmaceutical preparations such as solutions, lotions, mixtures, liniment, ointment, paste, powders, pills, poultice, plasters, emulsion, tinctures, electuaries.

Keeping of record of pharmacy lab as per provisions of Drug Regulations.

Identification of important therapeutic substances/ medicinal plants.

Identification of toxic substances and toxic plants.

**VLDD - VIII****Elementary Animal Husbandry Extension, 1+1****Theory VLDD - VIII**

Animal Husbandry Extension Education- Meaning, concept, levels, functions, philosophy and principles. Communication – Concept, elements, key communicators, models, barriers and factors affecting communication. Adoption - Definition, stages of adoption, adopters' categories, attributes of innovation and factors affecting adoption of animal husbandry practices. Audio-Visual Aids - Meaning importance and uses in veterinary and animal husbandry extension, selection criteria of suitable A.V. aids and their limitations. Extension Teaching Methods- Concept, classification and their relative merits and demerits. Programme planning – Meaning, objectives, principles and steps in programme planning and evaluation of programme. Extension programmes launched



by State Department of Animal Husbandry and SAU/SVU for the development of animal husbandry sector. Need assessment of livestock farmers, evaluation and problem's identification. Information and communication technologies for livestock development – concept, scope, tools, importance and limitations.

### **Practical VLDD – VIII**

Skills in handling of episcopes, slide, overhead and multimedia projectors. Preparation of visuals: Pamphlets, folders, posters, charts, transparencies, flash cards, flip charts etc. Writing for cattle owners: Advisory letters, circular letters, news item. Group discussion on situational/contemporary animal husbandry problems. Dealing with farmers visiting the veterinary hospitals. Identification of field problems of livestock owners. Conducting practical demonstrations for livestock owners. Identification of key communicators for animal husbandry extension programme. Building team work and dignity of labour. Conducting socio-economic surveys and data collection for livestock census. Handling of computers for extension work.

### **VLDD - IX                      Introduction to Livestock Products Technology, 1+0**

#### **Theory VLDD - IX**

General awareness about handling, preservation, storage, distribution and nutritive value of meat (including poultry meat).

Different types of meat animals and their meat characteristics (in brief). Care and handling of meat animals during transportation, pre- slaughter care, slaughtering technique of sheep, goat, pig and poultry, dressing percentage, different types of offal, ritual methods of slaughter.

General awareness about handling, storage, preservation, distribution and nutritive value of eggs. Candling and grading of eggs. Brief description of external and internal quality of egg (along with demonstration).

Milk definition and its composition: Factors affecting composition and quality of milk, Brief description of nutritive value of milk, Short notes



about Source of bacterial contamination in milk, factors affecting clean milk production, Definition of different methods for sampling of milk. Procedure of clot on boiling (C.O.B.) and alcohol tests.

Public-purpose awareness about procedures for estimation of pH, general awareness about procedure for estimation of specific gravity, fat, S.N.F and T.S in milk (along with demonstration).

Different types of milk and their Legal standards of milk.

Basics of Milk collection, processing, packaging and distribution of milk: Collection of milk, processing of fluid milk for consumption, homogenization, pasteurization, sterilization, packaging and distribution of milk.

Brief description of milk products- khoa, ghee, paneer, channa, dahi, cheese, ice cream, evaporated and condensed milk, milk powder.

Skills to assist veterinary surgeon in quality evaluation of livestock products (milk, meat, egg) and in promoting development in entrepreneurial venture in livestock products' processing by better skilled assistance.

### VLDD - X      Elementary Medicine, 3+1

#### **Theory VLDD - X**

Preparative exposure of following topics-

Introduction, definitions and importance of history of patient. Preliminary knowledge about signs of diseases of domestic animals and poultry. General awareness about general clinical methods of examination and approaching patient; Body temperature, pulse and respiration rate. Elementary clinical diagnostic methods. Introduction of Methods of drug administration. Glossary of Common contagious and non-contagious diseases caused by: Bacteria, Viruses, Fungi and Parasites. General principles of prevention and control of diseases. Utilization and disposal of carcasses. Camel diseases (Kumari and

Kapali). General account about Etiology, symptoms and First aid of following diseases: Common non-infectious diseases of equines viz. Colic, Lameness, Azoturia, Stomatitis, myositis. Elementary Symptoms and First aid of following diseases: Diseases of urinary system-urinary tract infection, nephritis, cystitis, calculi etc. General awareness about Symptoms and First aid of following diseases: Diseases of respiratory system-upper respiratory tract infection, pneumonia, neo-natal pneumonia, drenching pneumonia, pleurisy etc. General awareness about Symptoms and First aid of following diseases: Diseases of digestive system ruminants-stomatitis, pharyngitis, choke, simple, indigestion, acid indigestion, rumen dysfunction, alkaline indigestion, constipation, diarrhoea, tympany, Dysentery, impaction of rumen, colic, enteritis, traumatic reticulitis, intestinal obstruction and prevention of traumatic reticuloperitonitis etc. Introduction of Symptoms and First aid of following diseases: Diseases of skin, dermatitis, scabies, conjunctivitis, otitis etc in dog and large animal. Information on Symptoms and First aid of following diseases: Elementary knowledge of management of infectious diseases. Bacterial diseases – J.D., anthrax, haemorrhagic septicaemia. Black quarter, tetanus, brucellosis. Tuberculosis, Para tuberculosis, actinomycosis, actinobacillosis. Leptospirosis, salmonellosis, colibacillosis, contagious caprine pleuro pneumonia, tetanus, enterotoxaemia, foot rot and mastitis etc. Viral diseases – rinderpest (R.P.), foot and mouth disease(F.M.D.), pox (cow pox, sheep pox, goat pox, fowl pox etc.) rabies, ephemeral fever, African horse sickness. Swine fever, Poultry disease-Ranikhet disease, marek's disease, pullorum disease, chronic respiratory disease, (CRD), Bird flu and gumboro disease, fowl typhoid., etc. Fungal diseases. Protozoan diseases – theileriosis, babesiosis, surra, coccidiosis, anaplasmosis etc. Parasitic disease of animals – parasitic gastroenteritis in ruminants, hemonchosis in ruminants, ascarid infestations, strongylosis, lungworm infestation, louse infestations and mite's infestations etc. Short notes on Symptoms and First aid of following diseases: Metabolic diseases-milk fever, downer cow syndrome, ketosis, post parturient haemoglobinuria, hypomagnesemic tetany etc. Deficiency diseases-vitamins & minerals deficiencies, Ca, P, grass tetany, common salt, K, trace minerals, xerophthalmia, Iatrogenic haemorrhagic sweet clover disease, Polio

encephalomalacia, pica, rickets, osteomalacia. First aid of infestation from flies, lice, ticks and mites, and mange. Elementary Knowledge about deworming, vaccination schedule of livestock, dogs, equines & Poultry.

Skills in assistance ability in hospital and farmers' doorstep for help to veterinarian, to vaccinate animals against diseases and to take timely veterinary measures during first aid.

### **Practical VLDD - X**

Introductory art and practice of clinical examination. Study of some common glassware used in laboratories. Collection and preservation of urine: Physical examination of urine, Chemical examination of urine, Microscopic examination of urine. Examination of blood: Preparation of wet smear, Preparation and fixing of blood smear, staining of blood smear, estimation of haemoglobin, counting of blood cells. Fecal examination. To examine the milk for its quality. Collection, preservation and dispatch of toxic material. Collection, preservation and dispatch of material for laboratory examination. Skills for passing of stomach tube in equine, bovine, modes of drug administration, catheterisation of urinary tract, rumen trocarisation and collection of Strained Rumen Liquor. Providing first aid for simple and minor ailments and dispensing of medicines. Skill to check the pharmaceutical stock, to assess inventory and read prescription, process and dispense medication.

### **VLDD - XI                      Introduction to Surgical Procedures, 2+1**

#### **Theory VLDD - XI**

Elementary practical exposure only of following topics

Introduction and common terminology used in Veterinary Surgery. Restraining and positioning of animals.

Introduction to inflammation. Basics of Pre, intra and post-operative considerations in animals.

Operation theatre routines and preparation of patient.

Sterilization and disinfection, sepsis and antisepsis.

Preparation of surgical packs and general surgical instruments. Suture materials and surgical needles.

Basic Classification of wounds and its management. Introduction to Abscess management. Management of Cyst. Introduction of Hematoma and tumours. Care of Hernia, sinus and fistula.

Basic care of Necrosis and gangrene. Basic care of Haemorrhage and haemostasis. Management of bloat.

Common hoof problems and their management in bovines and equines. Fracture, dislocations and first aid.

Method of Dehorning, docking and castration.

Elementary management practice of urinary system affections. Introduction and general terminology used in veterinary anaesthesia. General considerations, methods and types of anaesthesia, Simple awareness about anaesthetic emergencies encountered in Veterinary Practice and monitoring during anaesthesia.

Introduction of Affections of teat (Laceration, hard milker, free milker, lactoliths).

Bandaging and splint application techniques. Introduction to burn and its preliminary management.

Basic Dental affections and their management.

First aid of critical illness and trauma patients. Post-operative management of surgical patients.

Skills in assisting veterinarian in care of surgical cases and upkeep of hospital equipment/O.T.

### **Practical VLDD - XI**

Restraint of surgical patients, Identification of various surgical instruments.

Sterilization and disinfection methods, Suture materials and techniques, Preparation of surgical pack for sterilization, Helping in preparation of operation theatre.

Operation room discipline and etiquettes, Surgical attires and their use by the Surgeon. Preparing animals for surgery, Various injections and techniques. Record keeping pertaining to OPD and operation theatre. Application of counter irritants, heat, cold fomentation. Dressing of wounds and bandages. Demonstration and practice of enema, drenching, bolus delivery. Demonstration and practice of castration, dehorning and debudding.

### **VLDD - XII            Introduction to Reproductive Disorders, 2+1**

#### **Theory VLDD - XII**

Foundation theoretical exposure only of following topics-

Introduction of gynaecology and obstetrics.

Reproductive patterns of livestock.

Genital organs of male and female of cattle, horse, dog, pig and poultry.  
Heat detection, gestation periods of domestic animals.

Care and management of pregnant animals.

Symptoms of parturition in domestic animals.

Assistance to parturient animal.

Care of new born and dam.

Preliminary knowledge of female infertility and its management.  
Transport of material from abortions.

Preliminary knowledge of different obstetrical conditions and their first aids management. Casting of animal in different gynaecological and obstetrical problems.

Assistance in handling obstetrical cases.

Preparation of packs for obstetrical operations.

Sterilisation of instruments. P

reparation of animal for obstetrical operations. Intrauterine medication.  
Nomenclature of gynaecological and obstetrical conditions. Basics of foaling and neonatal foal management. Glossary on infectious

reproductive diseases of males, General awareness about Heat detection aids.

Skills to assist veterinarian carefully in identification of reproductive patterns, record maintenance at farm/goshala, management of newly born calf.

### **Practical VLDD - XII**

Preparatory practical exposure only of following topics-

Examination of genital organs, slaughter house specimen, use of vaginoscope, casting of animal in different obstetrical problems, intrauterine medication, preparation of packs for obstetrical cases. Preparation of slide and staining for vaginal cytology in female dog, assistance in obstetrical cases, oestrus detection, visit to different livestock farms viz., cattle, buffalo, sheep, goat, poultry, camel, etc. Record keeping of herd, goshala and household animals. Assistance in obstetrical cases. Introduction to different gynaecological reproductive disorders in male and female animals. Identification of different equipment's used in veterinary hospital.

### **VLDD - XIII Introduction to Reproduction, Artificial Insemination and Storage of Semen, 1+1**

#### **Theory VLDD - XIII**

Definitions of puberty, sexual maturity, gestation and parturition. Introduction of ovogenesis, ovulation, andrology, and spermatogenesis. Reproductive hormones of male and female. Structure and function of male and female reproductive organs of bovines, horse, pig, sheep and goat and poultry. Oestrus cycle of domestic animals. Signs of heat in domestic animals. Sexual behaviour of animals. Management of bulls. Techniques of artificial insemination, advantages and limitations of the techniques of artificial insemination, reproductive record keeping and follow up of inseminated semen.

Preliminary knowledge of male infertility and its management.

Skills for pregnancy care, prolapse (uterine/vaginal/rectal) care and parturition/foaling. Skills to perform artificial insemination in cows and buffaloes and maintain record.

### **Practical VLDD - XIII**

Introductory practical exposure only of following topics- training of bulls for semen collection. Preparation of artificial vagina for semen collection. Semen collection and evaluation.

Preparation of diluters/ extenders of semen preservation or freezing, preparation of different stains for semen evaluation and cytology.

Demonstration of semen freezing techniques.

Artificial Insemination technique with liquid and frozen semen.

Sterilization of glass wares/laboratory wares used in A.I. work. Oestrus detection.

### **VLDD - XIV Introduction to Clinical Procedures & Animal Farm Practices, 0+6**

#### **Practical VLDD - XIV**

Preparatory practical exposure only of following topics

#### **Clinical procedures:**

Behaviour and posture of normal and sick animal. Lifting and care of animal after operation, care in hospital and cow shed. Restraining, handling and casting of livestock, dog and cat in hospital.

Basics of commonly used antimicrobials, fluids and their indications, poisoning/toxicity care.

Clinical methods of examination and detection of abnormalities.

Operation theatre management and lab management.

Practical Recording of temperature, pulse, ruminal movements and respiration. Methods of drug administration. Practice of compounding and dispensing of various drugs. Stomach tube and probang. Intramammary infusions.



Dressing of wounds. Preparation of commonly used ointments tinctures, lotions/solutions etc.

Acquaintance with various gynaecological and surgical instruments with their uses. Sterilization of instruments etc. Demonstration of gynaecological and surgical problems. Preparation and handling of surgical pack.

Introduction to laboratory diagnostics of blood (Hb, TLC, DLC, TEC, PCV, ESR, MCH, MCHC), faeces (blood, sedimentation, flotation, parasitic), skin scrapping and urine (chemical, microscopic and physical). Collection of clinical material for laboratory examination.

Castration of calf, sheep and goat. Prophylaxis measure against common diseases of domestic animals, livestock & poultry diseases.

Skills of restraint, handling of animal for diagnosis and collection of sample. Assistance to the veterinary surgeon in conducting procedures/operations and after care while performing the major operations. Skill in use of herbal medicines/ethno veterinary practices alone or in combination with allopathic medicines in animals.

### **Animal Farm Practices:**

1.

Brief introduction to various breeds of livestock, poultry and dog.

Cattle- Phenotypic characterization of important breeds. Feeding, management & disease control in young calves. Animal identification and performance recording. General management & feeding. Elementary knowledge and schedule of vaccination.

Poultry- Different indigenous breeds, commercial exotic breeds of poultry and their characteristics. Management of hatchery. Brooding of chicks from 0-6 weeks. Management of layers in the layer house. Demonstration of A.I. Prophylaxis. Economic traits of poultry.

2.

Different methods/procedures for efficient purchase of feed ingredients. Types of storage structures and form of storage. Scientific requirements for safe storage and different methods to avoid storage losses of feeds & feed ingredients. Processing of feed ingredients to improve their nutritive

value. Ration formulation and preparation for livestock and poultry. Complete feed block formulation and preparation. Urea molasses mineral block formulation and preparation.

3.

Identification of external body parts in different species. Importance of height and weight and weighing of cow, sheep, goat and pig. Importance of identification and different methods of identification used in farm animals i.e, colours and markings, artificial markings, basic rules, ear tagging, tattooing, branding and recommended time for identification. Breeding practices in different species of livestock: Artificial insemination, Pregnancy diagnosis, culling of animals, Measures to improve reproductive efficiency.

Skills in infrastructure and economic requirements for project for 10 cows or 5000 poultry.

Buffalo- Handling, casting and restraining of animals in farm and village. Selection, culling and judging of animals. Feeding and other day to day management practices. First aid of sick animals. Milking: management, methods, preparation and recording.

Poultry- Identification of Poultry birds. Brooding management. Litter management. Lay out plan of different types of poultry houses. Hatchery management. External body parts and breed characteristics. Management of layers and broilers in the house.

4.

Brief account of practical features of the following topics:

Importance of dentition, basic structure of tooth. Knowing the age of the cattle, buffalo, sheep, pigs and dog through dentition. Designing of animal house, watering in farm animals and floor space requirement for different classes of livestock including poultry. Disease prevention and control in a livestock farm i.e. Disinfection of animal houses and pastures.

Control of internal parasites and deworming, isolation, quarantine and vaccination. Disposal of carcasses i.e. burial of carcasses, burning of carcasses. Sanitation in a livestock farm: Importance of sanitation, commonly available sanitizing agents and sanitation programme, problems due to inadequate sanitation, sanitation in calf pens, sanitation in sheds and other quarters. Brief introduction to various breeds of sheep, goat and dog. Housing, feeding and breeding management of sheep and goat. Glossaries of terms used in sheep, goat and dog. Culling of animals. Care of neonatal and young stock. Disposal of solid and liquid waste from livestock farm and effective utilization of the same- various techniques of waste utilization viz., composting, bio-gas production, aerobic oxidation, direct application of waste in the farm land. Selection of the dog breeds, selection of a pup, breeding management of dogs, Care of pregnant bitch and pups. Importance of record keeping.  
Skills in pet animal vaccination and management of sick dogs.