

## SYLLABUS FOR VETERINARY PHARMACISTS TRAINING COURSE

Duration of Course	:	2 Years (Four Semesters) (Including six months hands on training at Veterinary institutions)
Teaching System	:	Semester System
System of evaluation	:	Internal evaluation semester wise followed by Annual Examination to be conducted by affiliating University

### Preamble

The proposed syllabus for Veterinary Pharmacist Training Course is aimed at preparing human resource capable of handling livestock, maintenance of hospital and farm records well acquaint with various equipments being used in routine at hospitals and livestock farms and able to assist the doctor in treatment of livestock.

FIRST YEAR	SEMESTER-I
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### 1. Elementary Animal Husbandry (AS-111) (2+1)

**THEORY** Common breeds of cattle, buffalo, sheep, goat, pig, horse: Animal Production Systems: Principles of housing for farm animals: Routine management practices for various categories of livestock (calves, heifers, pregnant and lactating animals etc. and sick animals, introduction to methods of castration, milking techniques and clean milk production, sanitation and hygiene practice; routine farm practices; Record keeping and responsibilities of Veterinary Inspector/para-veterinarian/ Vety. Pharmacists; Waste management; Branding techniques in animals; Biosecurity methods at livestock farms and neonatal calf care.

**PRACTICAL** Body parts of various livestock species; Routine dairy farm operations; identification of different breeds; identification techniques; Calf management and disbudding Housing Patterns; Cleaning and disinfection of dairy farm.

### 2. Elementary Livestock handling (AS-112) (2+1)

**THEORY** An overview of animal behavior, Common tools used for animal control, methods of restraint and handling of animals, Colors and markings of animals: Dentition Hoof trimming in bovine; Preparing animals for show/animal fair.

**PRACTICAL** Dentition, Colors, Markings, Identification, Hoof trimming, Restraint and handling of animals, Preparing animals for show/animal fair.

### 3. Elementary Animal Nutrition (AS-113) (2+1)

**THEORY** Principle of animal nutrition, Digestive system, Nutritional importance of carbohydrates,

lipids, proteins, vitamins, minerals and water; Common feeds and fodders; Scientific feeding and feeding schedule for different categories of livestock; Anti nutritional factors; Feed additives, Hay and Silage making; Precautions in the storage of feed and fodder.

**PRACTICAL** Identification and classification of feed and fodder, Sampling and preparation of feed, Preparation of hay and silage; Up gradation of roughages; Preparation of concentrate.

**4. Basic Computer Application (AS-114) (0+2)**

**PRACTICAL** Knowledge about the computer accessories. Use of computer in handling and presenting veterinary and livestock data. Working in Windows operating system. Working with MS Word. Spreadsheets using MS Excel Graphics and MS Power Point.

Internet and World Wide Web.E-mail and internet services; Computer viruses, antivirus.

**5. Elementary Anatomy and Physiology of Animals (VS-111)**

Introduction to anatomy and physiology of musculoskeletal, digestive, cardiovascular, respiratory nervous, excretory, male and female reproductive and endocrine system, mammary glands of domestic animals. Body cavities and its related organs, Basic physiological parameters of domestic animals.

**PRACTICAL:** Topographic anatomy and localization of various organs and body systems in domestic animals, Recording of normal physiological parameters i.e. heart rate, respiration rate and rectal temperature, Orientation to laboratory equipments.

**6. Basic Clinical Pathology and Laboratory techniques (VS-215) (2+1)**

**THEORY** Handling of laboratory equipment, glassware and chemicals, Cleaning and sterilizing of laboratory wares, Basic microscopy principles, Blood collection techniques, Use of anticoagulants, Urine collection, preservation and common physical and chemical tests, Collection, preservation and dispatch of tissues for histopathology.

**PRACTICAL** Opening of carcass, Collection, preservation and transportation of body fluids and tissues, Serum and plasma separation, Examination of blood for Hb, TLC, TEC, PCV, ESR, preparation of blood smear, Physical examination of urine.

<b>FIRST YEAR</b>	<b>SEMESTER-II</b>
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**1. Elementary Pharmacology (VS-121) (2+1)**

**THEORY** Introduction to Pharmacology, Nature and sources of drugs, Routes of drug administration, Dosage forms, Pharmaceutical processes, Handling of hazardous substances, Common antiseptics and disinfectants, Weighing and measurement of drugs and solutions,

Pharmacy calculations, Classification of important drugs, important indigenous drugs and contraindications for various medicines.

**PRACTICAL** Basic equipments/ instruments, Fundamental techniques in pharmacy, Dispensing and labeling of drugs, Preparation of solutions, ointments, lotions, tinctures, liniments, mixtures, electuaries etc. Drug dosage calculations.

**1. Elementary Poultry Science (AS-121) (1+1)**

**THEORY** Common breeds/strains of poultry, Different housing/rearing systems, Management of layer and broiler farm, Brooding, Hatchery routines, Cleaning of poultry sheds and litter management, Bio-security, Feeding and poultry rations, Introduction to common poultry diseases, Vaccination, Introduction to Quail and Turkey farming.

**PRACTICAL** Hatchery operations, handling of birds, Vaccination of birds, Practical feeding, Watering, Cleaning of poultry sheds, Debeaking, Assisting in opening bird for post mortem and morbid material collection, preservation and dispatch for laboratory diagnosis.

**1. Elementary Animal Husbandry Extension (AS-122) (1+1)**

**THEORY** Extension in rural welfare, Community development and rural Sociology, Principles and objectives of Veterinary and animal Husbandry extension, Qualities of extension worker, Extension teaching methods, Extension training programmes. Duties of Veterinary inspector/ParaVeterinarian, Role of media and communication tools, Prevention of Cruelty to animals and animal welfare concept.

**PRACTICAL** Audio-visual aids, Awareness campaigns, Mass media, preparation of charts, leaflet, pamphlet, poster, flash cards etc. Participatory approach to animal husbandry awareness regarding thrust areas i.e. mortality immunization, neonatal care and infant mortality, Nutritional programme including Hay and Silage making, Fodder development and animal management.

**1. Elementary Animal Reproduction (VS-122) (2+1)**

**THEORY** Female genitalia, Estrous cycle, Methods of heat detection, Gestation in domestic animals, Methods of pregnancy diagnosis, Abortion in domestic animals, Types of infertility in farm animals, Sexual health and herd health programme, Parturition, Care and management of dam and new born calf, Introduction to parturient problems in dairy animals, Pregnancy diagnosis.

**PRACTICAL** Study of female genitalia of domestic animals, Heat detection, Rectal palpation for artificial insemination, care of instruments for gynaecological procedures, Record keeping, pregnancy diagnosis.

## 2. Elementary Andrology and Artificial insemination (VS-123)

Study of male genitalia and gonads, Methods of semen collection and storage, Handling of fresh/frozen semen. Artificial insemination. Diseases transmitted through semen.

**PRACTICAL** Breeding bull management, Exercise and physical examination of breeding bulls. Collection of preputial washings, Preparation of artificial vagina, preparation of dummy/bull, handling of fresh and frozen semen. Artificial insemination, care, storage, sterilization of equipment's and record keeping.

## 3. Elementary Veterinary Epidemiology and Public Health (VS-124) (1+1)

**THEORY** Introduction to epidemiology, surveillance and monitoring of common seasonal diseases, public health considerations, common zoonosis and their management. Disposal of cadaver, concept of contagious, notifiable diseases and outbreaks, importance of animal disease monitoring, surveillance and diseases reporting.

**PRACTICAL** Attending to an outbreak of disease and assisting veterinarian in collection of material in outbreak of disease. Disposal of infectious material. Basic concept of disinfection and sterilization of infected site and material.

SECOND YEAR	SEMESTER-III
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## 1. Introduction to Livestock Disease Management (VS-211) (2+1)

**THEORY** Introduction to common diseases of livestock and poultry. Hemorrhagic Septicemia. Black Quarter, Sheep pox, PPR, interotoxemia, Brucellosis, Tuberculosis, Foot and mouth disease, Rabies, Johne's disease, Glanders, Classical swine fever and metabolic diseases etc. Insecticide toxicities and poisonous plants, Preventive health measures for bacterial, vital and parasitic diseases in various species.

**PRACTICAL** Nursing care and client education in control and prevention of prevalent diseases. Testing of animals for TB/JD and Brucellosis, Testing of fodder samples for intake, Cyanide toxicity etc. Vaccination for different diseases in animals.

## 2. Elementary Parasitology (VS-211)

**THEORY** Introduction to common parasites i.e. protozoa, trematodes, cestodes, nematodes and arthropods in livestock, Economic importance of parasitic diseases of livestock, Ecto and endo paraciticides.

**PRACTICAL** Demonstration of endo and ecto parasites, Demonstration of eggs/oocysts of parasites, Preparation of blood smears and common staining techniques for demonstration of

blood protozoa, Procedure for collection and dispatch of clinical samples (blood, faecal and skin scrapping to parasitological laboratory).

**3. Veterinary Hospital Maintenance (VS-212) (2+1)**

**THEORY** Maintenance of case record. Basic accounting, Preparation of bills and maintenance of consumable and non-consumable stock of hospital. Preparation of animals for surgical operation, Care and maintenance of surgical and anesthetic equipment's, Assisting Veterinary Surgeon in post-operative care, Sterilization of operation theatre, Surgical pack and surgical instruments. Types of suture material.

**PRACTICAL** Maintenance of case record. Maintenance of stock register, Administration of drugs, Handling and care of instruments and equipments, Preparation of surgical pack, Sterilization of surgical instruments, Preparation of animals for surgical procedure. Assisting Veterinary Surgeon in operative and post operative case, Sterilization of operation theatre, Handling of biomedical waste.

**4. Elementary Veterinary Medicines (VS-213) (2+1)**

**THEORY** Introduction to diseases of digestive, respiratory, musculo-skeletal, urinary and nervous system, Mastitis, Milk fever, ketosis, Haemoglobinuria, Deficiency diseases caused by minerals and vitamins.

**PRACTICAL** Signs of healthy and diseased animals, methods of drenching, dipping, bathing, spray, first aid in animals. Recording of temperature, pulse, respiration rate, and examination of mucus membranes in healthy and diseased animals, intravenous, intramuscular, subcutaneous, oral and topical routes of drug administration, collection of milk sample, recording of ruminal motility, collection of ruminal liquor, passing of stomach tube.

**5. Element of Wound care and Management (VS-214)**

**THEORY** Wound causes, Classification, Type of wound dressings, Basic concepts of abscess, ulcer, haematoma, cyst, tumour and hernia, Clinical use of antiseptic, fly repellents, anti maggot etc. First aid in sick animals including fracture cases. Management of bloat, hoof care.

**PRACTICAL** Handling of animals, dressing of aseptic, infected and maggot wounds, use of sling, dressings and bandages of surgical wounds, first aid in traumatized animals.

<b>SECOND YEAR</b>	<b>SEMESTER-IV</b>
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Last six months of training programme shall include hands on training at Veterinary Hospitals, livestock farms, sperm station and diagnostic labs.

**Practical Training (AVS-221)**

**0+15(NC)**

- a) **Veterinary Hospital (At Sub-Division level/Polyclinics): 3 Months.**  
Training at hospitals include handling and dealing with sick animals, record keeping ;medication, post-operative management of surgical patients, vaccination, artificial insemination, preparation of solutions, lotions, tinctures, ointments, mixtures (carminatives, laxatives, purgatives, febrifuge etc.) Electuaries etc. Castration, use of dehorner, mouth gage, twitch, hoof cutter, trochar & Cannula , Teat siphon, stomach tube, tagging and tattooing and all routine hospital jobs.
- b) **Livestock Farms: (2 Months) (Cattle Farm, Poultry Farm, Sheep Farm-20 Days each)**  
Handling, management practices of Dairy farm, Poultry farm, Piggery farm, Rabbit farm, Sheep and goat farm. Care of pregnant animals, routine farm operations including vaccination, deworming, maintenance or records etc. Communication with farmers, organizing meetings etc. Extension programmes, Animal welfare camps.
- c) **Sperm Station** **15-Days**  
Management of breeding bull, preparation of dummy, Artificial vagina preparation, preparation of extenders, handling of chilled and frozen semen, Storage of semen, handling of liquid nitrogen including its containers record keeping etc.
- d) **Diagnostic Laboratory:** **15-Days**  
Handling of laboratory equipment, methods for sending various samples to laboratory for examination. Blood smear preparation, staining ; Complete blood cell count. Serum and Plasma separation; Preservation of serum, plasma and tissues. Urine examination; Preparation of smears for faecal examination.

**Approved by the Government of Himachal Pradesh on the recommendation of Syllabus Revision Committee and conveyed by the Director, Animal Husbandry Department vide letter No. 6-5/69-Vety.-43(Syllabus) dated 24<sup>th</sup> September,2015.**