

## 01- Diploma of Clinical Biochemistry

### Compulsory courses

Contents	Courses	Code
Molecular structure of nucleosides, nucleotides, nucleic acids - Synthesis and degradation of nucleotides - Biochemistry of nucleic acids - Nucleic acids analysis - Diagnostic application of nucleic acids - PCR -	Molecular structural biochemistry	304-1011
The basic principles of Molecular biology - storage of genetic information - expression of genetic information - translation of genetic information - modern assumptions in molecular biology.	Molecular biology & Nucleic acids	304-1012
Carbohydrate chemistry - Lipid chemistry - Protein chemistry - Hormones - Vitamins chemistry - Chemistry of enzymes and coenzymes - Chemistry of putrefaction and detoxication - Mineral metabolism	Biochemistry of Metabolism	304-1013
Characters of blood- RBCs- WBCs - Immunity - Transfusion of blood - Hormones affecting blood volume- endocrinology	Physiology of blood and endocrinology	303-1014
Fluids electrolytes and acid base balance: gas transport, electrolyte status of blood and tissue, control of acid base balance. Biochemical structure of different tissues, (muscle, nerve), cell membrane and cell organelles, apoptosis, biochemical aspects of membrane receptors, biochemical constituents of blood , urine, milk, semen, synovial and cerebrospinal fluid.	Biochemistry of tissues and body fluids	304-1015
Clinical Enzymology- Kidney function tests - Biochemical aspects of myocardial, gastric, pancreatic, and intestinal functions - Biochemical aspects of hematology - Metabolic disorders of hormones - Vitamins - Blood gases, pH, electrolytes and acid base balance -	Clinical biochemistry	304-1016
Hematopoiesis - RBCs, WBCs, disorders- Clinical pathology laboratory and equipment - Blood film making and examination - Urine analysis	Applied clinical pathology	314-1017
Fecal examination- Blood examination- Examination of other body fluids and tissues - Examination for ectoparasites - Making permanent mounts of parasites - Serological diagnosis of parasitic diseases	Clinical Parasitology	308-1018

### Elective Courses

Contents	Courses	Code
Introduction to laboratory management and administration- Quality Management System (QMS) Requirements- Laboratory Quality assurance program requirements - Personnel management - Request Forms, Report Forms & Processing data - Facility- Safety in the Laboratory - Waste disposal	Laboratory management	304-1011E
Essential clinical toxicology - Analytical techniques - Systematic toxicological analysis of several classes of toxicants and their metabolites - Systematic toxicological analysis of several classes of drugs and their metabolites - Bio analytical methods for doping	Toxicology and doping detection	312-1012E
Introduction, basic bacterial structure, principals of bacterial Growth and reproduction. Basis of bacterial genetics, principals of bacterial virulence, classification of bacteria. Gram-negative and Gram-positive bacteria	General Bacteriology	310-1013E
Amino acidopathies, organic acidosis, disorders of carbohydrate metabolism and lipid metabolism, lysosomal storage diseases, peroxisomal diseases, purine and pyrimidine disorders, and a variety of other inborn	Inborn errors of metabolism	304-1014E

errors of metabolism.		
<b>02- Diploma of Animal Husbandry and Farm Management</b>		
<b>Compulsory courses</b>		
Contents	Courses	Code
Dairy cattle production – Beef cattle production – Poultry Production – Sheep and Goat production	Animal production	305-1021
Pricing and Elasticity measures - The business of veterinary practice - Veterinary marketing - Production and Costs functions - Management quality	Veterinary Economy and Farm Management	305-1022
General Ethology - Identification of animals Definition of animals common terms - Behavior and management of Equine - Behavior and management of cattle and Buffaloes - Behavior and management of sheep and Goat Behavior and management of camel	Behavior and Management of Farm Animals	319-1023
Dairy nutrition - Beef nutrition - Poultry and rabbit nutrition - Fish nutrition-Sheep and Goat Nutrition - Equine nutrition - Pet animal nutrition	Basic Nutrition	309-1024
Traits, Phenotypes, Genotypes and Genes in Populations-Mating systems – genetic parameters – Principles of Selection	Animal Breeding and Improvement	305-1025
Transmission and quantitative genetics – Cytogenetics - Molecular Genetic - Genetics and animal Diseases	Veterinary Genetics	305-1026
General poultry Behavior - Behavior and management of fowl - Behavior and management of water fowl - Behavior and management of turkey - Behavior and management of quails and pigeon - Behavior and management of ostrich - Behavior and management of rabbits - Behavior and management of laboratory animals	Behavior and Management of poultry	319-1027
Biosecurity definitions and measures - Assessment of biosecurity programs in different establishments	Biosecurity of Animal and Poultry Farms	319-1028
<b>Elective Courses</b>		
Contents	Courses	Code
Normal and abnormal pregnancy in farm animals - Normal and abnormal parturition in farm animals - Normal and abnormal puerperium in farm animals.	Obstetrics in farm animals	318-1021E
Hormones and hormonal cycle - Accessory endocrine gland - Reproduction and function – Semen- Stress hormone and fertility	Physiology of Reproduction	303-1022E
Characterization of Animal wastes - Analysis of wastes Modern and hygienic methods for recycling of animal wastes	Waste Management of Veterinary Facilities	319-1023E
Additives that influence feed stability, property and manufacturing - Additives that influence growth performances - Additives that influence consumer acceptance	Feed Additives	309-1024E
<b>03- Diploma of Pharmacology and Drug Promotion</b>		

## Compulsory courses

Contents	Courses	Code
<p>Introduction of pharmacology pharmacokinetics, pharmacodynamics and interactions- Drugs affecting autonomic and central nervous systems- Autacoids and anti-inflammatory drugs - Drugs affecting digestive, urinary and reproductive, respiratory and cardiovascular systems - Drugs affecting skin and eye- Antimicrobial drugs- Anthelmintic and antiprotozoal agents- Drugs affecting metabolism and metabolic disorders - The general principles of clinical pharmacology and the baselines of drug selection in different field cases.</p>	<p><b>Veterinary Clinical Pharmacology</b></p>	<p><b>306-1031</b></p>
<p>1- Basics of veterinary Pharmaceutics.                  2- Sources, forms and routes of administration of pharmaceutical preparations.                  3- Prescription writing and Forms of prescription.                  4- Abbreviations &amp; symbols in prescription writing.                  5- Cautions &amp; remarks in prescription writing and materials used in prescription.                  6- Incompatibility in prescription writing.                  7- Metrology and posology.                  8- Latin &amp; English numbers and Household measures.                  9- Compounding and dispensing of different pharmaceutical preparations.</p>	<p><b>Veterinary pharmacies</b></p>	<p><b>306-1032</b></p>
<p>1- Introduction to chemotherapy.                  2- Drug resistance and residues.                  3- Antimicrobial agents.                  4- Chemotherapy of helminth infections and antiprotozoal agents.                  5- Chemotherapy of tumors.                  6- Insecticides and rodenticides.                  7- Antiseptics and disinfectants.                  8 - Vaccines and antisera.                  9- Clinical application of drugs in different field cases.</p>	<p><b>Chemotherapy</b></p>	<p><b>306-1033</b></p>
<p>Role of drug interaction toxicity on some organs like liver and kidney – Histopathologic effects of some drugs on urinary system – drug residues effect on liver, lung, and kidney</p>	<p><b>Pathology of drug interactions</b></p>	<p><b>307-1034</b></p>
<p>1- Basic principles and concepts about drugs bioassay and analysis.                  2- Calculation of ED50 and LD50.                  3- Anti-depressants bioassays and analysis.                  4- Analgesic agents' bioassays and analysis.                  5- Anti-histaminic agents' bioassay and analysis.                  6- Antipyretics bioassay and analysis.                  7- Tranquilizers bioassay and analysis.                  8- Fibrinolytic bioassays and analysis.                  9- Hormonal drugs bioassay and analysis.                  10- Anti-inflammatory agents, Anti-arthritis agents &amp; Anti-edematous agents bioassays</p>	<p><b>Pharmacological evaluation and analysis</b></p>	<p><b>306-1035</b></p>
<p>1- The basis of drug marketing and promotion.                  2- The needs of drug marketing and promotion.                  3- Personal aspects of promotion.                  4- Drug promotion methods.                  5- Analysis of promotion outcomes.</p>	<p><b>Pharmaceutical Marketing and Promotion</b></p>	<p><b>306-1036</b></p>
<p>1- Introduction and physiological consideration about hormones.                  2- Gonadotrophic releasing hormones and drugs.                  3- Anterior and posterior pituitary hormones and drugs.                  4- Placental gonadotrophin hormones and drugs.                  5- Adrenal cortex hormones and drugs.                  6- Thyroid, parathyroid and antithyroid hormones and drugs.                  7- Endocrine pancreatic hormones and drugs.                  8- Sex steroid hormones and drugs.</p>	<p><b>Pharmacological hormones</b></p>	<p><b>306-1037</b></p>

9- Steroidal anti-inflammatory hormones. 10- Autacoids (local or tissue hormones) and drugs. 11- Growth promoting hormones and drugs.		
Additives that influence feed stability, property and manufacturing - Additives that influence growth performances Additives that influence consumer acceptance	<b>Feed Additives</b>	<b>309-1038</b>

### Elective Courses

Contents	Courses	Code
Biosecurity definitions and measures - Assessment of biosecurity programs in different establishments	Biosecurity for animal and poultry farms	319-1031E
1- Basic concepts about drug resistance. 2- The mechanism of drug resistance. 3- Types of drug resistance. 4- The clinical importance of drug resistance. 5- Basic concepts about drug residues. 6- Toxic effects of drug residues. 7- Veterinary drugs and growth promoters of residual concern. 8- Permissible limits of drug residues. 9- Methods for detection of drug residues. 10- Control measures of drug residues.	Drug resistance and residues	306-1032E
Physiology of endocrine glands and reproduction in mammals - Physiology of Muscles & Nerves - Physiology of Blood - Physiology of Digestion and metabolism - Physiology of adaptation and environment	Physiology	303-1033E
Basic of general toxicology - Corrosives - Metallic poisons - Pesticides - Animal poisoning - Volatile gases poisoning - Mycotoxicosis - Poisonous plants	Veterinary Toxicology	312-1034E

### 04- Diploma of Applied Nutrition

#### Compulsory courses

Contents	Courses	Code
Dairy nutrition - Beef nutrition - Poultry and rabbit nutrition - Fish nutrition - Sheep and Goat Nutrition - Equine nutrition - Pet animal nutrition	Basic Nutrition	309-1041
Classification of the feeds, Grains, Grains byproducts, Liquid energy feeds, Forages, Roughages, Minerals supplements and Deleterious substances	Feed and Foodstuffs	309-1042
Additives that influence feed stability, property and manufacturing - Additives that influence growth performances - Additives that influence consumer acceptance	Feed Additives	309-1043

Diseases of digestive system of ruminants - Diseases of digestive system in equine - Diseases of digestive system in pet animals	Diseases of Digestive system	316-1044
Application of the principles of nutrition to feeding of farm animals - composition and nutritional value of feed stuffs; nutritional requirements of beef cattle, dairy cattle, horses, poultry, Metabolic disorders - Feed management	Applied Nutrition and Nutritional Deficiency Diseases	309-1045
Animal Feed in the Food Chain - Microbiological Hazards - Chemical and Physical Hazards - Prevention and Control of Hazards using Hygiene Programs	Factories of Feed and feed Hygiene	309-1046
Basics of ration formulation - Ration formulation for dairy cattle - Ration formulation for beef cattle - Ration formulation for poultry and rabbit - Ration formulation for fish	Ration formulation	309-1047
Dairy cattle production – Beef cattle production – Poultry Production – Sheep and Goat production	Animal Production	305-1048

### Elective Courses

Contents	Courses	Code
Introduction to farm management - Systems of management of animal production farms - Decision making polices - Evaluation of management quality - Financial analysis of animal farms	Farm Management	305-1041E
Fertility & reproductive performance in farm animals - Hormonal causes of infertility - Environmental causes of infertility - Pathological causes of infertility - Reproductive failure & lowered conception rate in farm animals	Infertility diseases	318-1042E
General Ethology introduction - Behavior and management of Equine - Behavior and management of ruminant - Behavior and management of poultry Behavior and management of camel - Behavior and management of rabbits - Identification of animals and poultry - Definition of animals and poultry common terms	Animal Management	319-1043E
Factors affect digestion - Salivary digestion - Control of gastric secretion - Neural control of rumen - Functional structure of the digestive system Digestion and absorption of food- The movement of different parts of the digestive system - Mechanism of waste disposal	Physiology of digestion and Growth	303-1044E

### 05- Diploma of Microbiology

#### Compulsory courses

Contents	Courses	Code
Introduction, basic bacterial structure, principals of bacterial Growth and reproduction. Basis of bacterial genetics, principals of bacterial virulence, classification of bacteria. Gram-negative and Gram-positive bacteria	General Bacteriology	310-1051
Introduction, bases of immunology, bases of innate immunity, bases of complement, bases of phagocytosis, antigen, immunoglobulin, cell-mediated, autoimmune diseases, hypersensitivity	Immunology	310-1052
Definition of Virus, Virus shape, virus structure, virus replication, virus tropism, Effect of viruses on host cells	General Virology	311-1053

Collection of specimens - hematological changes in bacterial infections – immunoglobulins – anemia - antimicrobial sensitivity test - Diagnosis of mastitis	Clinical Microbial Pathology	314-1054
Introduction, advances in bacterial classification, advances in Gram-positive and Gram-negative bacteria	Systematic Bacteriology	310-1055
Introduction, basic fungal structure, principals of fungal Growth and reproduction. Basis of fungal genetics, principals of fungal virulence, moulds, yeasts and diphasic fungi	Mycology	310-1056
Study the RNA virus families as Picornaviridae, Flaviviridae, Togaviridae and also DNA virus families as Herpesviridae, Poxviridae	Specific Virology	311-1057
Fecal examination- Blood examination- Examination of other body fluids and tissues - Examination for ectoparasites - Making permanent mounts of parasites - Serological diagnosis of parasitic diseases	Clinical Parasitology	308-1058

### Elective Courses

Contents	Courses	Code
Types of disinfection-Mode of action of disinfection - Hygienic disposal of disinfectant residues	Disinfection and Disinfectants	319-1051E
Clinical Enzymology- Kidney function tests - Biochemical aspects of myocardial, gastric, pancreatic, and intestinal functions - Biochemical aspects of hematology - Metabolic disorders of hormones – Vitamins - Blood gases, pH, electrolytes and acid base balance -	Clinical Biochemistry	304-1052E
Introduction, advances in structure of bacterial genome, advances in replication, transcription and translation in bacteria, advances in mutation, gene transfer in bacteria, advances in molecular mechanisms of antimicrobial resistance in bacteria	Microbial Genetics	305-1053E
Metabolism of carbohydrates, metabolism of proteins and amino acids. Synthesis and degradation of nucleosides, nucleotides. Nucleic acid analysis. DNA hybridization	Microbial Biochemistry	304-1054E

## 06- Diploma of Food Hygiene and Safety

### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Biosynthesis and nutritive value of milk</li> <li>• Milk composition Hygienic handling of raw milk</li> <li>• Milk spoilage (fermentation). Abnormal milk and methods of its detection. clean milk production</li> <li>• Milk-borne pathogens. Sanitary and keeping quality of milk. Hygienic handling of eggs and its products</li> <li>• Egg spoilage - Microbiological quality of eggs and its products</li> </ul>	Hygiene and safety of milk and dairy products	313-1061
<ul style="list-style-type: none"> <li>• Types of abattoir and construction. Methods of slaughter. Disease of food animals. Poultry meat inspection. Fish meat inspection. Meat preservation.</li> <li>• Meat processing. Meat microbiology. Meat analysis.</li> <li>• By-products of meat</li> </ul>	Hygiene and safety of meat and meat products	313-1062
<ul style="list-style-type: none"> <li>• Additives that influence feed stability, property and manufacturing - Additives that influence growth performances - Additives that influence consumer acceptance</li> </ul>	Feed Additives	309-1063
Incysted-metacercariae in tissues, cysycerci on organs and tissues.	Parasites of Tissues	308-1064

Nematodes in organs and vessels in slaughter animals, poultry and fish meat		
<ul style="list-style-type: none"> <li>• Introduction, standards and legislations - Food Hygiene</li> <li>• Food Contamination - Risk assessment in dairy products</li> <li>• Risk assessment in meat products</li> </ul>	Quality control of milk and dairy products	313-1065
<ul style="list-style-type: none"> <li>• Introduction, standards and legislations - Food Hygiene</li> <li>• Food Contamination - Risk assessment in meat products</li> </ul>	Quality control of meat and meat products	313-1066
<ul style="list-style-type: none"> <li>• Technology of different of food of animal origin</li> <li>• Heat treatment - Chemistry of food of animal origin - Microbiology of food of animal origin- Spoilage of food of animal origin - Therapeutic value of food of animal origin- Preservation of food of animal origin</li> </ul>	Technology and preservation of food of animal origin	313-1067
<p>Basic concepts about drug resistance. The mechanism of drug resistance. Types of drug resistance. The clinical importance of drug resistance. Basic concepts about drug residues. Toxic effects of drug residues. Veterinary drugs and growth promoters of residual concern. Permissible limits of drug residues. Methods for detection of drug residues. Control measures of drug residues.</p>	Drug residues	306-1068

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Dry cow nutrition - Early lactating cow nutrition - Mid lactating cow nutrition - Late lactating cow nutrition – beef cattle nutrition</li> </ul>	Cattle Nutrition	309-1061E
<ul style="list-style-type: none"> <li>• Food Microbiology - its Origins and Scope - Important Microorganisms in Food -</li> </ul>	Bacteriology and mycology of food contamination	310-1062E
<ul style="list-style-type: none"> <li>• Viroses of Farm animals, Bacterioses of Farm animals, Parasitoses of Farm animals, Mycoses of Farm animals and Rickettsioses of Farm animals.</li> </ul>	Zoonoses of Farm animals	319-1063E
<ul style="list-style-type: none"> <li>• Introduction to farm management - Systems of management of animal production farms - Decision making policies - Evaluation of management quality - Financial analysis of animal farms</li> </ul>	Farm Management	305-1064E

### 07- Diploma of Clinical Laboratory Diagnosis

#### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Diagnosis of erythrocytic abnormalities - diagnosis of erythrocytic abnormalities - diagnosis of thrombocytes abnormalities - diagnosis of bone marrow abnormalities</li> </ul>	Diagnosis of Blood Diseases and Bone marrow examination	314-1071
<ul style="list-style-type: none"> <li>• Cell injury - Disturbances in cell metabolism - Disturbances in circulation - Disturbances in growth – Inflammation - oncology</li> </ul>	General Pathology	307-1072
<ul style="list-style-type: none"> <li>• Basic concepts of liver function tests - basic concepts of kidney function tests - basic concepts of pancreas function tests</li> </ul>	Organ dysfunctions evaluation	314-1073
<ul style="list-style-type: none"> <li>• Interleukin 1 as an inflammatory mediator - Tumor necrosis factor (TNF) and inflammation - Interleukin 6: a consequence of inflammation - The acute phase response - The role of leukocyte chemotaxis in inflammation</li> </ul>	Biochemistry of cancer and inflammation	304-1074
<p>Post mortem examination - Specimens and sampling - Preparation of tissue – Staining - Light Microscope examination</p>	Diagnostic Pathology	307-1075
<ul style="list-style-type: none"> <li>• Clinical Enzymology- Kidney function tests - Biochemical aspects of myocardial, gastric, pancreatic, and intestinal functions - Biochemical aspects of hematology - Metabolic disorders of hormones – Vitamins - Blood gases, pH, electrolytes and acid base balance -</li> </ul>	Clinical Biochemistry	304-1076



<ul style="list-style-type: none"> <li>• Fecal examination- Blood examination- Examination of other body fluids and tissues - Examination for ectoparasites - Making permanent mounts of parasites - Serological diagnosis of parasitic diseases</li> </ul>	<b>Clinical Parasitology</b>	<b>308-1077</b>
<ul style="list-style-type: none"> <li>• Essential clinical toxicology - Analytical techniques - Systematic toxicological analysis of several classes of toxicants and their metabolites - Systematic toxicological analysis of several classes of drugs and their metabolites - Bio analytical methods for doping</li> </ul>	<b>Toxicology and doping detection</b>	<b>312-1078</b>

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Gonadotrophic releasing hormones and drugs - Anterior and posterior pituitary hormones and drugs- Placental gonadotrophin hormones and drugs- Adrenal cortex hormones and drugs -Thyroid, parathyroid and antithyroid hormones and drugs -Endocrine pancreatic hormones and drugs- Sex steroid hormones and drugs.</li> <li>• Steroidal anti-inflammatory hormones- Autacoids (local or tissue hormones) and drugs -Growth promoting hormones and drugs.</li> </ul>	<b>Pharmaceutical Hormones</b>	<b>306-1071E</b>
<ul style="list-style-type: none"> <li>• Introduction to Molecular Biology, Central Dogma, Nucleic acid structure, DNA replication, RNA transcription and translation, Regulation of gene expression in pro and eukaryotes, Mutations, Functional Genomics, Proteomics, molecular biology tools</li> </ul>	<b>Biotechnology</b>	<b>304-1072E</b>
<ul style="list-style-type: none"> <li>• Introduction, basic bacterial structure, principals of bacterial Growth and reproduction. Basis of bacterial genetics, principals of bacterial virulence, classification of bacteria. Gram-negative and Gram-positive bacteria</li> </ul>	<b>General Bacteriology</b>	<b>310-1073E</b>
<ul style="list-style-type: none"> <li>• Structure of the blood cells and marrow - Study of hemopoiesis and, stem cells - Lymphatic organs</li> </ul>	<b>Histology of Blood and Hemopoiesis</b>	<b>302-1074E</b>

### 08- Diploma of Fish Diseases

#### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Classification of bacterial fish Diseases - Epizootiology of bacterial fish diseases - Gram negative bacterial – diseases - Gram positive bacterial diseases - Systemic bacterial diseases</li> </ul>	<b>Bacterial Fish Diseases</b>	<b>315-1081</b>
<ul style="list-style-type: none"> <li>• Classification of Parasitic fish Diseases - Protozoal fish diseases - External Flagellated fish diseases - Sporozoal fish diseases - Mono-genetic trematodal diseases - Blood Parasitic diseases - Di-genetic trematodal diseases - Crustacean fish diseases</li> </ul>	<b>Parasitic Fish Diseases</b>	<b>315-1082</b>
<ul style="list-style-type: none"> <li>• Family Cichilidae - Family Cyprinidae - Family Siliridae - Family Mugilidae - Marine water cultured fishes</li> </ul>	<b>Commercial farm fishes</b>	<b>315-1083</b>
<ul style="list-style-type: none"> <li>• Feedstuffs of the Fish, Nutrient requirements for Fish, Deleterious substances in the feeds affecting Fish, Nutritional deficiency diseases affecting Fish, Metabolic diseases affecting Fish.</li> </ul>	<b>Fish nutrition</b>	<b>309-1084</b>
<ul style="list-style-type: none"> <li>• Predisposing factors for mycotic infection- classification of fungal diseases - High water temperature mycotic diseases - Low water temperature mycotic diseases - Prevention &amp; control of mycotic diseases</li> </ul>	<b>Mycotic Fish Diseases</b>	<b>315-1085</b>
<ul style="list-style-type: none"> <li>• Introduction of viral diseases -Viral diseases of shrimp</li> <li>• Viral diseases of freshwater fish-Viral diseases of marine fish -</li> </ul>	<b>Viral Diseases of fish and</b>	<b>315-1086</b>



Epizootiology of viral diseases-Diagnosis of viral diseases	Crustacea	
• Requirements for land suitable for fish culture -Types of fish culture- Principles of Pond construction - Factors affecting fish performance	Pond Construction	315-1087
• Classification and identification of aquatic animal viruses - Diagnosis of aquatic animal viral diseases - DNA Viruses of Fish - RNA Viruses of Fish - Viruses of Crustaceans	Virology of Fish	311-1088
<b>Elective Courses</b>		
Contents	Courses	Code
• Respiration, excretion and digestion in fish- Endocrine glands and hormones and their functions- Reproduction , induced spawning and monosex production in fishes - Osmoregulation in fish - Growth and moulting in crustacean - Reproduction in shrimps	Physiology of aquatic animals	303-1081E
• Molecular structure and metabolism of carbohydrates, lipids and proteins and amino acids in aquatic animals. Biochemistry of vitamins, coenzymes, and hormones in aquatic animals.	Biochemistry of fish and aquatic animals	304-1082E
• Trematodes, Cestodes, Nematodes and Acanthocephla of fish	Parasites of Fish	314-1083E
• It includes all bacteria and fungi affecting aquatic organisms (fish, shrimp etc.) Also, the study of immunology of aquatic organisms.	Bacteriology and mycology of Fish	310-1084E
<b>09- Diploma of Farm Animals Diseases</b>		
<b>Compulsory courses</b>		
Contents	Courses	Code
• Viral diseases of livestock • Bacterial diseases of livestock	Infectious diseases of farm animals (1)	316-1091
• Diseases of digestive system and liver- diseases of respiratory system - Nutritional deficiency diseases - Metabolic disorders - Diseases of urinary system - Skin diseases - Diseases of Musculoskeletal system	Internal Medicine of farm animal (1)	316-1092
• Body and plant Composition, water, carbohydrates, Proteins, Fat, Minerals and Vitamins - Classification of the feeds, Grains, Grains byproducts, Liquid energy feeds, Forages, Roughages, Minerals supplements and Deleterious substances - Ration formulation	Farm Animal nutrition	309-1093
• Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of Parasites of farm animals.	Parasites of farm animals	308-1094
• Parasitic diseases of livestock • Mycotic diseases of livestock	Infectious diseases of farm animals (2)	316-1095
• Metabolic disorders - Diseases of urinary system - Skin diseases - Diseases of Musculoskeletal system	Internal Medicine of farm animal (2)	316-1096
• Normal and abnormal pregnancy in farm animals • Normal and abnormal parturition in farm animals • Normal and abnormal puerperium in farm animals.	Theriogenology in Farm Animals	318-1097
• Drug sources- Pharmaceutical preparations and drug forms- Drug routes of administration- Pharmacokinetics and Drug residues- Pharmacodynamics- Factors affecting drugs actions and doses.	Pharmacology	306-1098

Elective Courses		
Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Basic bacterial structure, principals of bacterial Growth and reproduction. Gram-negative and Gram-positive bacteria - principals of fungal Growth and reproduction. Basis of fungal genetics, principals of fungal virulence, molds, yeasts and diphasic fungi</li> </ul>	<b>Bacteriology and mycology of farm animals</b>	<b>310-1091E</b>
<ul style="list-style-type: none"> <li>• Definition of Virus, Virus shape, virus structure, virus replication, virus tropism, Effect of viruses on host cells - Study the RNA virus families as Picornaviridae, Flaviviridae, Togaviridae and also DNA virus families as Herpesviridae, Poxviridae</li> </ul>	<b>Virology of farm animals</b>	<b>311-1092E</b>
<ul style="list-style-type: none"> <li>• Cell injury - Disturbances in cell metabolism - Disturbances in circulation - Disturbances in growth – Inflammation - oncology</li> </ul>	<b>General Pathology</b>	<b>307-1093E</b>
<ul style="list-style-type: none"> <li>• localized surgical affection -Hemorrhage and haemostasis- Affection of skin- Affections of bursae, cysts, tumors, hernias -Surgical disorders of body regions -Affection of lymphatic system, affection of muscles</li> </ul>	<b>General Surgery</b>	<b>317-1094E</b>
<b>10- Diploma of Pet Animals Medicine</b>		
Compulsory courses		
Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Viral diseases of dogs and cats</li> <li>• Bacterial diseases of dogs and cats</li> </ul>	<b>Infectious diseases of Pet animals (1)</b>	<b>316-1101</b>
<ul style="list-style-type: none"> <li>• Diseases of digestive system and liver- diseases of respiratory system - Nutritional deficiency diseases - Metabolic disorders - Diseases of urinary system - Skin diseases - Diseases of Musculoskeletal system</li> </ul>	<b>Internal Medicine of Pet animals (1)</b>	<b>316-1102</b>
Surgery of Eye, Nose, Larynx, Ear - Surgery of digestive system - Surgery of urogenital system - Surgical operations of the musculoskeletal system	<b>Pet Animals Surgery</b>	<b>317-1103</b>
<ul style="list-style-type: none"> <li>• Patterns of behavior of dogs and cats - Breed s of dogs and cats - Description and identification of dogs and cats - management of dogs and cats</li> </ul>	<b>Behavior of pet animals</b>	<b>319-1104</b>
<ul style="list-style-type: none"> <li>• Parasitic diseases of dogs and cats</li> <li>• Mycotic diseases of dogs and cats</li> </ul>	<b>Infectious diseases of Pet animals (2)</b>	<b>316-1105</b>
<ul style="list-style-type: none"> <li>• Metabolic disorders - Diseases of urinary system - Skin diseases - Diseases of Musculoskeletal system</li> </ul>	<b>Internal Medicine of Pet animals (2)</b>	<b>316-1106</b>
<ul style="list-style-type: none"> <li>• Normal and abnormal pregnancy in pet animals</li> <li>• Normal and abnormal parturition in pet animals</li> <li>• Normal and abnormal puerperium in pet animals.</li> </ul>	<b>Theriogenology in Pet Animals</b>	<b>317-1107</b>
<ul style="list-style-type: none"> <li>• Feedstuffs of the pet animals -Nutrient requirements for pet animals-Deleterious substances in the feeds affecting pet animals-Nutritional deficiency diseases affecting pet animals - Metabolic diseases affecting pet animals</li> </ul>	<b>Pet animals nutrition</b>	<b>309-1108</b>
Elective Courses		
Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Study of Viruses infect pet animals as Rabies, canine</li> </ul>	<b>Viruses of pet animals</b>	<b>311-1101E</b>

distemper virus		
<ul style="list-style-type: none"> <li>• Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of Parasites of pet animals</li> </ul>	Parasites of Pet animals	308-1102E
<ul style="list-style-type: none"> <li>• Introduction to physiology, which include the body systems and functional relationship of these systems with each other in the body - cell biology and function of each cell type and suitability of each cell structure to its function</li> </ul>	Basic Physiology	303-1103E
<ul style="list-style-type: none"> <li>• It includes all bacteria and fungi affecting pet animals.</li> <li>• Also, the study of immunology of pet animals.</li> </ul>	Bacteriology and mycology of Pet animals	310-1104E

## 11- Diploma of Veterinary Surgery

### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Localized surgical affection -Hemorrhage and haemostasis- Affection of skin- Affections of bursae, cysts, tumors, hernias -Surgical disorders of body regions -Affection of lymphatic system, affection of muscles</li> </ul>	General Surgery	317-1111
<ul style="list-style-type: none"> <li>• Studying the general signs of animal diseases as Variation in body temperature Disturbance of body fluids and electrolytes Disturbance in acid base balance</li> </ul>	General Internal Medicine	316-1112
<ul style="list-style-type: none"> <li>• External or surface anatomy of live animals (landmarks, operation and anesthesia sites), Body cavity and topographic anatomy for different organs and body wall</li> </ul>	Applied Anatomy	301-1113
<ul style="list-style-type: none"> <li>• Knowing the anaesthetic drugs types. Description and understanding basis of pharmacology of anaesthesia. Understanding efficiency of drugs in anaesthesia. Learning and Understanding ways of selecting proper anaesthetic drugs.</li> </ul>	Pharmacology of anesthesia	306-1114
<ul style="list-style-type: none"> <li>• Ophthalmology - Ear and horn affections - Respiratory system surgical affections- Digestive system surgical affections- Urogenital systems surgical affections -mammary gland surgery.</li> </ul>	Special Surgery	317-1115
<ul style="list-style-type: none"> <li>• Diagnosis and classification of lameness - Clinical anatomy of the equine and bovine foot - Hoof and claw affections - Fore limb affections - Hind limb affections.</li> </ul>	Lameness	317-1116
<ul style="list-style-type: none"> <li>• Pre-anaesthetic medications -Regional anaesthesia</li> <li>• -General anaesthesia -Anaesthetic emergencies and accidents - X-rays - Musculoskeletal system radiography and ultrasonography - chest, abdomen, urogenital system radiography and ultrasonography</li> </ul>	Anesthesia and diagnostic radiology	317-1117
<ul style="list-style-type: none"> <li>• Cell injury - Disturbances in cell metabolism - Disturbances in circulation - Disturbances in growth – Inflammation - oncology</li> </ul>	General Pathology	307-1118

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Study of Membranous organelles, Non-membranous organelles and Nucleus by EM , Study of DNA , Cell cycle , and chromosomal anomalies - Fundamental body tissues</li> </ul>	General Histology	302-1111E
<ul style="list-style-type: none"> <li>• Introduction, basic bacterial structure, principals of bacterial Growth and reproduction. Basis of bacterial genetics, principals of bacterial virulence, classification of bacteria. Gram-negative and Gram-positive bacteria</li> </ul>	General bacteriology	310-1112E

<ul style="list-style-type: none"> <li>• Patterns of behavior, Behavior of cattle, equine, sheep, goat, camel and poultry. Management of cattle, equine, sheep, goat, camel and poultry</li> </ul>	Animal Behavior	319-1113E
<ul style="list-style-type: none"> <li>• The basic clinical pathology laboratory-the complete pathology laboratory- preparation and shipment of laboratory specimen- major types of laboratory assay- diagnostic properties and predictive value of laboratory assays</li> </ul>	Clinical pathology	314-1114E

## 12- Diploma of Reproduction and Artificial Insemination

### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Normal and abnormal pregnancy in farm animals</li> <li>• Normal and abnormal parturition in farm animals</li> <li>• Normal and abnormal puerperium in farm animals.</li> </ul>	Obstetrics in farm animals	318-1121
<ul style="list-style-type: none"> <li>• Congenital causes of infertility</li> <li>• Hormonal causes of infertility</li> <li>• Pathological causes of infertility</li> <li>• Environmental causes of infertility</li> <li>• Repeat breeder</li> <li>• Reproductive ultrasonography.</li> </ul>	Infertility in the female animals	318-1122
<ul style="list-style-type: none"> <li>• Reproductive system of different animals, and the fundamental differences between different species of animals and method of reproduction- function of the reproductive system of females of different animals</li> </ul>	Reproductive physiology	303-1123
<ul style="list-style-type: none"> <li>• Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of cestodes, trematodes, nematodes and protozoa parasites infecting genital system of different animals.</li> </ul>	Parasitology of reproduction	308-1124
<ul style="list-style-type: none"> <li>• Semen collection and evaluation</li> <li>• Semen biochemistry and sperm morphology</li> <li>• Semen dilution and processing</li> <li>• Insemination techniques</li> </ul>	Artificial Insemination in farm animals	318-1125
<ul style="list-style-type: none"> <li>• Reproductive pattern of males in farm animals</li> <li>• Fertility indices in male farm animals.</li> <li>• Forms of infertility in male farm animals</li> <li>• Breeding soundness examinations for males in farm animals.</li> </ul>	Andrology and breeding soundness examinations	318-1126
<ul style="list-style-type: none"> <li>• Comparative histology and histochemistry of different organs male and female genital systems.</li> </ul>	Histology of the reproductive system	302-1127
<ul style="list-style-type: none"> <li>• It includes all bacteria and fungi affecting reproductive system. Also, the study of immunology of reproduction</li> </ul>	Bacteriology and mycology of the genital system	310-1128

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Introduction to farm management - Systems of management of animal production farms - Decision making policies - Evaluation of management quality - Financial analysis of animal farms</li> </ul>	Farm management	305-1121E
<ul style="list-style-type: none"> <li>• Dry cow nutrition -Early lactating cow nutrition -Mid lactating cow nutrition -Late lactating cow nutrition</li> <li>• Calf nutrition- Heifer nutrition- Nutritional disorders of dairy cow</li> </ul>	Dairy cattle nutrition	309-1122E
<ul style="list-style-type: none"> <li>• Pre-anaesthetic medications -Regional anaesthesia</li> <li>• -General anaesthesia -Anaesthetic emergencies and accidents - X-rays - Musculoskeletal system radiography and</li> </ul>	Anesthesia and radiology	317-1123E

ultrasonography - chest, abdomen, urogenital system radiography and ultrasonography		
<ul style="list-style-type: none"> <li>Female reproductive system pathology</li> <li>Male reproductive system pathology</li> </ul>	Pathology of the genital system	307-1124E

### 13- Diploma of Embryo Transfer

#### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>Superovulation</li> <li>Embryos collection and evaluation</li> <li>Techniques of embryo transfer.</li> </ul>	<b>Embryo transfer in farm animals</b>	<b>318-1131</b>
<ul style="list-style-type: none"> <li>Follicular dynamics in farm animals</li> <li>Reproductive hormones</li> <li>Controlled reproduction in farm animals</li> </ul>	<b>Follicular dynamics and reproductive hormones in farm animals</b>	<b>318-1132</b>
<ul style="list-style-type: none"> <li>Gametogenesis, Fertilization, cleavage, gastrulation, neurulation, fetal membranes formation and placentation</li> <li>Development of different body systems (and congenital anomalies related to each system)</li> </ul>	<b>Embryology in farm animals</b>	<b>301-1133</b>
<ul style="list-style-type: none"> <li>Biochemistry of male sex hormones. Synthesis and degeneration. Hormone receptors and biochemical action of hormones. Metabolism and interconversion of monosaccharides into fructose. Sources of energy required for sperm motility. Chemical and functional correlation in ejaculated semen. Biochemistry of seminal plasma and male accessory fluids.</li> </ul>	<b>Biochemistry Hormones and Reproduction</b>	<b>304-1131</b>
<ul style="list-style-type: none"> <li>- Collection and in vitro maturation of oocytes</li> <li>- In vitro fertilization</li> <li>- Preservation of embryos</li> <li>- Evaluation and transfer of preserved embryos.</li> </ul>	<b>In vitro production and preservation of embryos</b>	<b>318-1134</b>
<ul style="list-style-type: none"> <li>- Basics of reproductive molecular biology</li> <li>- Molecular regulation of reproductive hormones</li> <li>-Molecular regulation of folliculogenesis, ovulation and Fertilization.</li> <li>- Molecular regulation of spermatogenesis.</li> <li>- Molecular markers of semen quality and sperm freezability.</li> <li>- Molecular regulation of pregnancy and placental function.</li> </ul>	<b>Reproductive molecular biology</b>	<b>318-1135</b>
<ul style="list-style-type: none"> <li>Implantation</li> <li>Fetal membranes (yolk sac – allantois – amnion – chorion)</li> <li>Placentation (formation and types of placenta)</li> <li>Anomalies</li> </ul>	<b>Fetal membranes and placentation</b>	<b>318-1137</b>
<ul style="list-style-type: none"> <li>Body cavity and topographic anatomy for different organs and body wall.</li> </ul>	<b>Applied anatomy of the reproductive system</b>	<b>301-1138</b>

#### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>Chromosomal aberrations and reproduction.</li> <li>Reproduction and associated advanced genetic techniques</li> </ul>	<b>Molecular Genetics</b>	<b>305-1131E</b>
<ul style="list-style-type: none"> <li>Anatomical studies on the different components of genital system which include ovary , uterine tube , uterus , vagina , vulva , mammary glands, testes, scrotum , epididymis , ductus deferens, male accessory genital gland , penis .</li> </ul>	<b>Comparative anatomy of the genital system</b>	<b>301-1132E</b>
<ul style="list-style-type: none"> <li>Comparative histology and histochemistry of ovary , uterine tube , uterus , vagina , vulva , testes , epididymis , ductus deferens , accessory genital gland , penis .</li> </ul>	<b>Histology of the genital system</b>	<b>302-1133E</b>
<ul style="list-style-type: none"> <li>Dairy nutrition - Beef nutrition - Sheep and Goat Nutrition -</li> </ul>	<b>Animal Nutrition</b>	<b>309-1134E</b>

Equine nutrition - Pet animal nutrition		
<b>14- Diploma of Veterinary Public Health</b>		
Compulsory courses		
Contents	Courses	Code
<ul style="list-style-type: none"> <li>Stress - Water Hygiene and pollution - Waste water analysis and treatment - Air Hygiene and pollution - Animal and poultry housing hygiene</li> </ul>	Animal, poultry and environment Hygiene	319-1141
<ul style="list-style-type: none"> <li>Major public health hazards pollutants - Basic principles: factors affecting toxicity-Toxicokinetics and toxicodynamics-Toxicity testing, dose response and risk assessment-Environmental carcinogenesis-Biomarkers of exposure and susceptibility factors-Approaches to primary and secondary prevention</li> </ul>	Toxicology and public health	312-1142
<ul style="list-style-type: none"> <li>Occupational Viroses, Occupational Bacterioses, Occupational Parasitioses, Occupational Mycoses, Occupational Rickettsioses and Prevention strategies</li> </ul>	Occupational Zoonoses	319-1143
<ul style="list-style-type: none"> <li>Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of cestodes, trematodes, nematodes and protozoa</li> </ul>	Parasitology	308-114‡
<ul style="list-style-type: none"> <li>Introduction and terms-Types of Epidemiological studies - Pattern of disease spread</li> </ul>	Epidemiology	319-114°
<ul style="list-style-type: none"> <li>Food-borne Viroses, Food-borne Bacterioses, Food-borne Parasitioses, Food-borne Mycoses, Food-borne Rickettsioses, Food-borne prionoses and Prevention strategies.</li> </ul>	Food Borne Zoonoses	319-114∩
<ul style="list-style-type: none"> <li>Biosecurity definitions and measures- Assessment of biosecurity programs in different establishments</li> </ul>	Relation between Management and Biosecurity in Farm Animal	319-114∪
<ul style="list-style-type: none"> <li>Introduction and importance of infectious diseases Viral diseases of livestock - bacterial diseases of livestock</li> <li>parasitic diseases of livestock - mycotic diseases of livestock</li> </ul>	Infectious Diseases	316-114^
Elective Courses		
Contents	Courses	Code
<ul style="list-style-type: none"> <li>Definition of Virus, Virus shape, virus structure, virus replication, virus tropism, Effect of viruses on host cells, DNA viruses, RNA viruses</li> </ul>	Virology	311-1141E
<ul style="list-style-type: none"> <li>Basic bacterial structure, principals of bacterial Growth and reproduction. Basis of bacterial genetics, principals of bacterial virulence, classification of bacteria. Gram-negative and Gram-positive bacteria, basic fungal structure, principals of fungal Growth and reproduction. Basis of fungal genetics, principals of fungal virulence, moulds, yeasts and diphasic fungi</li> </ul>	Bacteriology and Mycology	310-1142E
<ul style="list-style-type: none"> <li>Characterization of Animal wastes - Analysis of wastes - Modern and hygienic methods for recycling of animal wastes</li> </ul>	Waste management of veterinary facilities	319-1143E
<ul style="list-style-type: none"> <li>Basis of veterinary economics -Economic and veterinary resources-Production and costs function-Management of veterinary business:</li> </ul>	Veterinary Economic	305-1144E
<b>15- Diploma of Bird and Rabbit Diseases</b>		
Compulsory courses		
Contents	Courses	Code

<ul style="list-style-type: none"> <li>Newcastle Disease - Avian Influenza Disease- Infectious Bursal Disease - Avian Pox- Neoplastic Disease - Duck viral Disease</li> </ul>	Avian viral diseases	320-1151
<ul style="list-style-type: none"> <li>Aspergillosis - CandidioisAvian ring worm – Mycotoxicosis - Vitamin A Deficiency -Vitamin - Gout and Canabalism</li> </ul>	Avian mycotic and Nutritional deficiency diseases	320-1152
<ul style="list-style-type: none"> <li>Viral Diseases of birds– Bacterial Diseases- Parasitic Diseases- Mycotic Diseases</li> </ul>	Laboratory diagnosis of avian and rabbit diseases	320-1153
<ul style="list-style-type: none"> <li>Definition and identification of birds other than chicken - Management and breeding of birds- Raising birds other than chickens</li> </ul>	Poultry production	305-1154
<ul style="list-style-type: none"> <li>Salmonellosis – Pasteurollosis – Mycoplasmosis - E coli infections - Chlamydiosis and Campylobacteriosis - Closterdial infections</li> </ul>	Avian bacterial diseases	320-1155
<ul style="list-style-type: none"> <li>Avian coccidiosis –Endoparasiticmetozoa (trematodes- Cestodes and Nematodes)-Ectoparasitic infestation( Ticks- Mites and Lice)</li> </ul>	Avian parasitic diseases	320-1156
<ul style="list-style-type: none"> <li>Viral diseases of Rabbits - Bacterial diseases of Rabbits- Parasitic diseases of Rabbits - Mycotic diseases of Rabbits</li> </ul>	Rabbit diseases	320-1157
<ul style="list-style-type: none"> <li>External morphology and internal anatomy of different body systems of birds and rabbits</li> </ul>	Avian and rabbit anatomy	301-1158

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>Respiration - Reproduction- excretion - digestion in birds- endocrine glands and hormones and their functions</li> <li>Adaptation of aquatic and wild birds</li> </ul>	Physiology of poultry	303-1151E
<ul style="list-style-type: none"> <li>Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of cestodes, trematodes, nematodes and protozoa parasites infecting birds and rabbits</li> </ul>	Parasites of birds and rabbits	308-1152E
<ul style="list-style-type: none"> <li>Knowing the ways of drug interaction - Description and understanding the types of drug interaction- How to deal with drug interactions</li> </ul>	Pharmacology drug interactions	306-1153E
<ul style="list-style-type: none"> <li>Collection of viral samples ,Isolation and propagation of viruses, serological identification of viruses</li> </ul>	Laboratory Diagnosis of Viruses	311-1154E

## 16- Diploma of Equine Medicine and Surgery

### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>Diseases of upper digestive system in equine - General manifestation of respiratory diseases - nutritional deficiency diseases in equine General manifestation of urinary tract diseases- general manifestations and treatment of musculoskeletal system</li> </ul>	Equine Internal Medicine	316-1161
<ul style="list-style-type: none"> <li>Surgery of Eye, Nose, Larynx, Ear - Surgery of digestive system - Surgery of urogenital - Radiology and ultrasonography of musculoskeletal system, chest, abdomen and urogenital system.</li> </ul>	Equine Surgery	317-1162
<ul style="list-style-type: none"> <li>Patterns of behavior of equine - Breed s of equine</li> </ul>	Equine Behavior	319-1163



• Description and identification of equine management of equine		
• abnormalities of erthrogram, leukogram and platelets of equine - disturbances of blood chemistry in equine diseases- evaluation of organ functions tests in equine diseases	Equine Clinical Pathology	314-1164
• Viral diseases of equine - bacterial diseases of equine - parasitic diseases of equine - mycotic diseases of equine	Equine Infectious Diseases	316-1165
• Normal and abnormal pregnancy in equine • Normal and abnormal parturition in equine • Normal and abnormal puerperium in equine	Equine Theriogenology	318-1166
• Nutrition of foal, Nutrition of pregnant mare, Nutrition of lactating mare, Nutrition of working and raising horses, Nutritional disorders of equines	Equine Nutrition	309-1167
• Disease spread, measures of disease frequency, study designs	Applied Epidemiology	319-1168

### Elective Courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Knowing the general pharmacology of all drugs</li> <li>• Description and understanding basis of drug action and mechanism of action.</li> <li>• Understanding and calculation of drug-receptor interaction and dose response curve</li> <li>• Learning and Understanding ways of selecting proper treatments for various disorders.</li> </ul>	Pharmacology	306-1161E
<ul style="list-style-type: none"> <li>• Introduction, advances in bacterial classification, advances in Gram-positive and Gram-negative bacteria - Introduction, advanced fungal structure, advanced fungal Growth and reproduction. Advanced fungal genetics, advanced fungal virulence, moulds, yeasts and diphasic fungi</li> </ul>	Equine bacteriology and mycology	310-1162E
<ul style="list-style-type: none"> <li>• Study of viruses infect equine as equine herpes virus 1 and 4, equine, Coital exanthema virus</li> </ul>	Equine Virology	311-1163E
<ul style="list-style-type: none"> <li>• Morphology, epidemiology, pathogenesis, clinical signs, diagnosis and control measures of cestodes, trematodes, nematodes and protozoa parasites infecting equines.</li> </ul>	Equine Parasitology	308-1164E

### 17- Diploma of Forensic Medicine and Toxicology

#### Compulsory courses

Contents	Courses	Code
<ul style="list-style-type: none"> <li>• Basis of DNA profiling and DNA database</li> <li>• Samples analyzed, methodology, analytical issues</li> <li>• Polymerase chain reaction (PCR), mitochondrial DNA</li> <li>• DNA extraction methodologies and techniques</li> <li>• DNA quantitation methodologies and techniques</li> <li>• STR DNA typing analysis</li> </ul>	DNA fingerprinting	312-1171
<ul style="list-style-type: none"> <li>• Adulteration types: poisonous substances, foreign matter, cheap substitutes, spoiled parts. Adulteration through Food Additives – Intentional and incidental.</li> <li>• Methods of Detection: in milk, and milk products, meat and processed meat.</li> <li>• Molecular techniques for detecting food adulteration</li> <li>• Food safety and standards authority</li> <li>• Adulteration health hazards and risks.</li> </ul>	Detection of food adulteration	312-1172
<ul style="list-style-type: none"> <li>• Mutation and Mutagenes – Carcingenes - Oncogenic viruses – Oncogenes - Tumor suppressor genes - Cancer as a genomic disease</li> </ul>	Genotoxicity	305-1173
<ul style="list-style-type: none"> <li>• Knowing the pharmacology of diseases</li> </ul>	Veterinary Clinical	306-1174

<ul style="list-style-type: none"> <li>• Description and understanding basis of drug action in various clinical disorders.</li> <li>• Understanding the control of diseases</li> <li>• Learning and Understanding ways of selecting proper treatments for various disorders.</li> <li>•</li> </ul>	<b>Pharmacology</b>	
<ul style="list-style-type: none"> <li>• Basic of general toxicology – Corrosives - Metallic poisons – Pesticides- Animal poisoning- Volatile gases poisoning – Mycotoxicosis - Poisonous plants</li> </ul>	<b>Food-borne and household toxicants</b>	<b>312-1175</b>
<ul style="list-style-type: none"> <li>• Bio analytical and forensic approaches to doping - Environmental data analysis - Environmental toxicology</li> <li>• Water management - Environmental toxicology and pollution monitoring project -Permissible limits of different toxicant in water, food and feed</li> </ul>	<b>Environmental pollutants and doping</b>	<b>312-1176</b>
<ul style="list-style-type: none"> <li>• Toxins, xenobiotics, and toxicity - factors affecting toxic effects - mechanism of toxic cell injury - environmental pollutants - pathogenesis and tissue reaction to infectious pollutants</li> </ul>	<b>Toxicological and Environmental pollutants pathology</b>	<b>307-1177</b>
<ul style="list-style-type: none"> <li>• Liver functions, nitrogen metabolites and renal functions, gastric, pancreatic, myocardial and intestinal functions, biochemical aspects of hematology, porphyrins and disorders of porphyrin metabolism, clinical chemistry of pregnancy, lysosomal storage diseases</li> </ul>	<b>Clinical Biochemistry</b>	<b>304-1178</b>
<b>Elective Courses</b>		
<b>Contents</b>	<b>Courses</b>	<b>Code</b>
1- Sampling of food (meat and their products) 2- Food inspection 3- Rapid methods for meat analysis 4- Testing meat products for adulteration 5- Detection of potential hazardous substances in food 6- Testing physical and chemical constants of meat	<b>Analysis of Meat and Meat products</b>	<b>313-1171E</b>
<ul style="list-style-type: none"> <li>• Air hygiene - Water hygiene - Livestock housing - Air pollution - Water pollution - Animal waste management</li> </ul>	<b>Animal, poultry and environmental Hygiene</b>	<b>319-1172E</b>
<ul style="list-style-type: none"> <li>• Introduction, types of immunology, innate immunity, complement, phagocytosis, antigen, immunoglobulin, cell-mediated, autoimmune diseases, hypersensitivity</li> </ul>	<b>Immunity</b>	<b>310-1173E</b>
<ul style="list-style-type: none"> <li>• Molecular genetics and veterinary applications -Structure of Nucleic acid - DNA replication- Genetic expression</li> <li>• regulation of protein synthesis-Recombinant vaccines</li> <li>• Genetics and animal diseases</li> </ul>	<b>Molecular genetics and veterinary applications</b>	<b>305-1174E</b>