**Physiology (A) (PHY. 212)**

**Overall aims of the Course:**

1. Define the fundamental principles and mechanisms that govern body functions, with an emphasis on the molecular aspects.
2. Distinguish the different physiological mechanisms for maintaining homeostasis in animals.
3. Explain, and interpret the knowledge of veterinary physiology, and integrate it with animal production and clinical sciences.

**Course contents:**

* Cell physiology: General structure of cell, Cell membranes, Cell receptors, Transport across the cell membrane, Cytoplasmic Organelles, Nucleus, Cell cycle, Apoptosis.
* Nervous system: Introduction of Nervous system, Components of nervous system and synapse, Membrane potentials, Reflex arc, Neurotransmitters, Cranial nerves, Functions of central nervous system, Autonomic nerve fibers and distribution, Autonomic ganglia, Sympathetic stimulation, Parasympathetic stimulation.
* Muscle and Nerve: Types of muscle and their functions, Properties of skeletal muscle, Factors affecting muscle contraction, Changes during muscle contraction: A- Electrical changes. B- Excitability Changes. C- Metabolic or chemical changes. D- Mechanical and Thermal changes.
* Hematology: Blood composition and distribution, General properties and functions, Hematopoiesis, Red blood corpuscle, Hemoglobin, White blood cell, Blood platelets and Hemostasis, Fibrinolysis, Plasma and Plasma proteins, Immunity.
* Cardiovascular system: Structure and functions of circulation, Types of circulation, Properties of cardiac muscles and Electrocardiogram, Cardiac cycle and Heart sounds, Control of the heart, Homodynamic and Control of blood vessels.
* Respiration: Structure and function of respiratory system, Lung volumes and capacities, Mechanism of respiration, Gas exchange and transport, Control of respiration
* Simple digestion: Introduction of simple digestion, Salivary digestion, Gastric digestion, Pancreatic enzymes and Bile, Gastrointestinal hormones, Intestinal digestion and absorption, Gastrointestinal motility, Control of GIT, Absorption and evacuation