**HUMAN PHYSIOLOGY-II (Credit Hours 3+0)**

**AIMS AND OBJECTIVES:**

• To study the details of physiological systems maintaining the homeostasis.

• Interrelations of the systems.

• Regulatory features of the each system’s function.

• To study the details of nervous and hormonal coordination at molecular and cellular level in animal.

• Bio synthetics, secretary and regulatory aspects of coordination. Course Detail

• Excretory system: System organization, Kidneys, Urine formation, Glomerular filtration, Processes of tubular reabsorptions and secretion.

• Endocrine System: Cellular secretions and their types, Structure and function of endocrine glands, Basic mechanism of hormone action, Control of hormone secretion by Hypothalamo-pituitary axis, Secretions of nonendocrine glands of body.

• Reproductive System: Female reproductive system, Oogenesis and its hormonal regulation, Menstrual cycle: Phases of menstruation, hormonal regulation, Overview of secondary sex characteristics, external genitalia and mammary glands, Male reproductive system, Testes and Spermatogenesis, Male sex hormones and their role in spermatogenesis, Accessory sex glands and composition of semen.

• Musculo-skeletal System: Structure and function of muscle, Neuromuscular junction.

• Nervous System: Structure and function of neuron, Membrane potential and nerve impulse, Synaptic transmission, Sensory and motor system.

• Spinal Cord: Nerve Pathways, Sensory and motor tracts and Spinal nerves, Reflexes and reflex arc.

• Brain: Functional areas of brain and cranial nerves, Formation and regulation of cerebrospinal fluid, Cerebral blood flow and blood brain barrier, Receptors and their classification.

**Practicals:**

To observe and determine the normal physical and chemical properties of urine sample.

Detection of abnormal constituents of urine in detail.

To determine (quantitative) blood urea nitrogen/Creatinine in the provided pathological sample for the detection of uremia.

Spectrophotometric determination of urinary calcium/Uric acid concentration.

Spectrophotometric determination of urinary phosphate concentration.

To study the muscular contraction kymography Isolation of nerve and muscle (Sciatic and Gastrocnemius) in frog and to observe irritability on mechanical and electrical stimulation.

**Recommended Books:**

1. Shier, D., Butler, J., Lewis, R., 2003. Hole’s Essentials of Human Anatomy and Physiology, 8th ed; McGraw-Hill.
2. Tortora, G. J. J., and Grabowski, S.R., 2000. Principles of Anatomy and Physiology, 9th ed; John Wiley and Sons, 26
3. Guyton, A. C. and Hall, J. E. 2005. Textbook of Medical Physiology, 12th ed; W. B Saunders.
4. Waugh, A., Grant, (2002). A., Ross and Wilson Anatomy and Physiology in Health and Illness, 9th ed; Churchill Livingstone,
5. Marieb, E.N., 1997. Human Anatomy and Physiology, 4th ed; Benjamin/Cummings Science Publishing,
6. Hall, J. E and Guyton, A. C., 2005. Guyton and Hall Physiology Review Elsevier Health Sciences
7. Seifter, J., 2005. Concepts in Medical Physiology Lippincott Williams & Wilkins.
8. Martini, F. H. and Ober, W. C., 2005. Fundamentals of Anatomy and Physiology, 2005. Pearson Education.
9. Marieb, E. N., 2005. Human Anatomy and Physiology Laboratory Manual: Fetal Pig Version, Update, Pearson.
10. Martini, F. H. 2005. Fundamentals of Anatomy and Physiology - Study Guide, Pearson.
11. Wood, M., 2005. Laboratory Manual for Anatomy and Physiology, Cat Version Pearson.
12. Wood, M. G., 2005. Anatomy and Physiology: Main Version. Pearson Education
13. Moore, K, L., Dalley, A. F. and Dalley, A. F., 2005. Clinically Oriented Anatomy. Lippincott Williams and Wilkins.