**DSE**

**Paper II**

 **Biology**

**Course Objective**

The given course has been formulated with an objective to make the student aware about some of the important aspects of animal biology. It includes the study of human physiology, study the microbiology, introduction to the immune system and some introduction to personal identification techniques. The students will also learn about the organization of chromosomes, cell division, various types of mutations and various genetic disorders.

**Course Outcome**

CO1: Understand Human Physiology and different organ systems.

CO2: Acquaint students with the immunological aspects.

CO3: Describe structure, functions and properties of the biomolecules

**Unit 1**: Human Physiology: Introduction of different types of physiological systems: Cardiovascular and lymphatic system, Respiratory System, Excretory System, Digestive System, Nervous System, Integumentary System, Endocrine System and Skeletal System

**Unit 2**: Immunity: Definition, types-natural, acquired, active, passive. Antigens – Definition, types of antigens; Factors influencing antigenicity; Antibody-Definition, structure, types, properties and function of immunoglobulins, antigen-antibody reaction- agglutination and precipitation

**Unit 3**: Human Bio-chemistry: Proteins – structure, properties and functions: Carbohydrates – structure, properties and functions; lipids - structure Types of Macronutrients and micronutrients in the body.

**Unit 4:** Historical introduction to microbiology, Basics of microbiology and concepts of pure culture techniques Broad classification of microorganisms, Mendelian Principles, Mendels Laws and Ratio, Sex linked inheritance, sex determination, Chromosomes: Discovery, morphology and structural Organization, Mutation and its types.

**Suggested Readings**

1. Sanders, T.; Scanlon, V. (2006). *Essentials of Anatomy and Physiology*. F.A. Davis Company.
2. Mader (2004). *Understanding Human Anatomy and Physiology.* McGraw-Hill Science.
3. Goldsby R.A.A; Kuby, J.; Kindt, T.J. (2000). *Immunology*.
4. Leffel, M.S.; Donnenberg, A.D.; Rose, N.R. (1997). *Handbook of Human Immunology* CRC press.
5. Ganagne, S.D. (2001). *Human Genetics*. B.L Churchill Livingstone Pvt. Ltd., New Delhi.
6. Bhatnagar, S.M. (1999). *Essentials of Human Genetics.* Orient Longman.