**BASIC IMMUNOLOGY CREDIT HOURS 2+1**

**LEARNING OUTCOMES:**

**Students will be able to:**

1. To provide a greater understanding of the role of the immune system in preventing human disease and to focus on how deficiencies in immunity can result in disease susceptibility
2. To understand basis of immunity and cells and organs involved in acquired immunity.
3. To understand the role of antibodies and induction of antibody response to antigens.

**COURSE CONTENTS:**

Introduction: chronological development and scope of immunology; Immunity and immune responses: Definitions and types (specific and non-specific). Humoral and cellular immunity; Introduction to complement system; Cells and tissues of immune system; The antigens: structure (simple and complex molecules, proteins and polysaccharides) and immunogenicity; Tissue antigens: the Allo- and heterophile antigens. The ABO and RH blood group systems, their chemical basis, inheritance & clinical significance. Immunoglobulin: structure and function; classes, subclasses, types and subtypes; immunoglobulin genetics; Immune response to an antigen; Introduction to antigen-antibody reactions: methods for detecting antigens and antibodies (agglutination, precipitation, complement fixation, EIA, etc.); Introduction to HLA & MHC and its role in immune response, disease and its significance in tissue transplantation; Immune-regulation and tolerance; Introduction to Cancer immunology; introduction to immunopathology: hypersensitivity reactions; autoimmune diseases and immunodeficiencies; Immunization (methods of immunization, vaccines and adjuvants).

**PRACTICALS:**

1. Total and Differential leukocyte count.

2. Blood grouping (ABO & Rh).

3. Immuno-diagnostic Methods.

4. Agglutination test (Widal test).

5. Precipitation tests.

6. Gel diffusion test.

7. ICT Test.

**RECOMMENDED BOOKS:**

1. Abbas, A. K., Lichtman, A. H. and Pillai, S. 2007. Cellular and Molecular Immunology, Elsevier Health Sciences, N.Y.
2. Abbas, A. K., Lichtman, A. H. and Pillai, S. 2012.Basic Immunology Functions and Disorders of the Immune System. 4th Edition.
3. Chen, E. R. and Kasturi, S. 2006. Deja Review: Microbiology and Immunology, McGraw-Hill Companies, N.Y.
4. Janeway, C., Travers, P., Walport, M. and Shlomchik, M. 2004. Immunobiology: The Immune System in Health and Disease, Taylor & Francis Inc., London.
5. Johnson, A. G. G., Ziegler, R. J., Lukasewycz, O. A. and Lukasewycz, O. A. Microbiology and Immunology: Board Review Series,Lippincot Williams and Wilkins, M.D.
6. Lichtman, A. H. 2007. Basic Immunology. Elsevier Health Sciences, N.Y.
7. Murphy,K., and Weaver,C.,2016. Janeway's Immunobiology. Garland Science.
8. Parham, P., 2015. The Immune System, 4th Edition. Garland Science.
9. Paul, W.E. 2013. Fundamental Immunology, 6th Edition. Lippincot Williams and Wilkins, M.D.
10. Thomas, J. K., Richard, A. G., Barbara, A., O., Janis, K.,2013. Kuby Immunology. 7thEdition.

Emon, V. M. 2006. Immunoassay and Other Bioanalytical Techniques, CRC Press, F.L.