BSS504IMMUNO
LOGY **39 hrs**

After successful completion of the course, students will be able to:

CO 1. Gain an in-depth knowledge of immunology.
CO 2. Understand the structure and functions of various immune cells and organs
CO 3. Comprehend antigen and antibody structure and the mounting of immune responses.
CO 4. Understand autoimmunity, hypersensitivity and immunodeficiencies
CO 5. Understand the principles and application of various immunological techniques.

UNIT I (13 hrs)

Immunology: History and scope of immunology; Immunity, classification of immunity; Host defence: cellular, tissue and humoral immunity; Acquired immunity; Primary and secondary lymphoid organs; Immune response of T and B cells; Cytokines – structure and functions. Microbial defence: invasion, antigens, toxins. Antibodies: Production, structure, classification and functions; hyper variable region, Isotypic, allotypic and idiotypic variations. Antigenicity and immunogenicity, haptens. Complement.

UNIT II (13 hrs)

Autoimmune diseases: Thyrotoxicosis, Systemic Lupus Erythematosus, Antinuclear antibodies. Hypersensitivit - reactions. Tumor immunology– tumor antigens, immune surveillance, immunological escape. Immune deficiency diseases– AIDS; Immunological tolerance, Immunization and Vaccines: Types and production.

UNIT III (13 hrs)

Major Histocompatibility Complex (MHC), HLA polymorphism. Tissue haplotypes and disorders, Tissue and organ grafting, graft rejection, Immune suppression. Immunological techniques: Antigen-antibody reactions. Precipitation and agglutination, immune diagnosis, ELISA, RIA, immunoblotting and immunofluorescence and chemiluminescence; Fluorescent activated cell sorter (FACS); Hybridoma technology, production and application of monoclonal antibodies.