

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 immune deficiencies
- 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. **Hypersensitivity** - reactions. Tumor immunology– tumor antigens, immunosurveillance, 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, immunodiagnosis, ELISA, RIA, immunoblotting and immunofluorescence and chemiluminescence; Fluorescent activated cell sorter (FACS); Hybridoma technology, production and application of monoclonal antibodies.