BSS 504 IMMUNOLOGY

39hrs

Course Outcomes:

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

- Gain a sound knowledge in immunology from basics to advanced levels.
- Know the history and appreciate the scope of immunology.
- Realize the meaning of various terminologies in immunology.
- Understand the structural and functional basis of immune cells and organs.
- Comprehend how body defence against microbial infection.
- Get a detailed picture of antigens and antibodies.
- Know about different types of autoimmune diseases, AIDS and tumor-immunology.
- Understand how to perform immunization and production vaccines.
- Master the theoretical knowledge of various immunological techniques, including, ELISA, RIA, Fluorescent activated cell sorter.
- Know the biomedical importance of hybridoma technology for production of monoclonal antibodies.
- Know how to do in-vitro fertilization, embryo transfer, super ovulation and cloning.

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; Microbial defence: invasion, antigens, toxins; Antibiodies: Production, structure, classification and functions; Antigen-antibody reactions.

UNIT II (13 hrs)

Autoimmune diseases:Thyrotoxicosis, Systemic Lupus Erythromatosis, Antinuclear antibodies, hypersensitivity; Tumour immunology— tumor antigens, immunosurveillance,

immunological escape. Immune deficiency diseases— AIDS; Immunological tolerance, Immunization and vaccines.

UNIT III (13 hrs)

Immunological techniques: Precipitation and agglutination, immunodiagnosis, ELISA, RIA, immunoblotting and immunofluorescence; Flourescent activated cell sorter (FACS); Hybridoma technology, production and application of monoclonal antibodies; *In-vitro* fertilization, embryo transfer, super ovulation and cloning; Juvenile hormone analogues.

References:

- 1. Cellular and molecular immunology Abul K. Abba, Andrew H. Lichtman, Jordan S.Pober- Saunders Co.
- 2. Essential immunology Ivan Riott 8th edition Blackwell publishers, 1988

- Handbook of expt. Immunology vol.1,2. Wier DM Blackwell scientific Pub.
 Immunology Janis Kuby. Freeman and co publishers, 2000
 Immunology 3rd edition. Ivan Riott, Jonathan Brostoff and David Male. Mosby publishers
- 6. Immunobiology- 3rd edition Janeway and Travers. Churchill Livingstone publicat
- 7. Practical immunology. Hudson et al Blackwell scientific Pub., 1986
- 8. Immunology. Elgert KD. Jon Wiley and Sons, USA
- 9. Microbiology and Immunology Concepts. Barrett JT, Lippincott-Raven, USA

