Semester VII						
S.No	**Course Code**	**Course Name**	**L**	**T**	**P**	**C**
1	BB 607	Immunology	2	1	0	6
2	BB 414	Biology Lab IV	0	0	3	3
3		Program Elective	3	0	0	6
4		Institute Elective -IV	3	0	0	6
5		HSS Elective-II	3	0	0	6
		Total Credits				30

1	**Title of the course** (L-T-P-C)	**Immunology** **(2-1-0-6)**
2	**Pre-requisite courses(s)**	Basic Cell biology and Genetics, Microbiology
3	**Course content**	**1.** Introduction, Organization of the immune system (lymphoid tissues and organs). **2.** Immune cell development (hematopoiesis, T and B cell development). **3.** Innate and adaptive immunity (including cellular and humoral responses). **4.** Antigens and Antibodies (antibody classes, Ag/Ab structure and function). **5.** Immune signaling (T cell receptor, TLRs, inflammatory and cytokine responses) and cancer. **6.** The MHC and Ag presentation and T cell development. Immunity mechanisms in disease (allergies, autoimmunity, immuno-deficiency).
4	**Texts/References**	**1.** Judith A. Owen, Jenni Punt, Sharon A. Stranford, Patricia P. Jones., Kuby Immunology, W.H. Freeman and Company, 2013. **2.** Kenneth Murphy , Paul Travers , Mark Walport, Janeway's Immunobiology, Garland Science, Taylor & Francis Group, 200

1	**Title of the course** (L-T-P-C)	**Biology Lab IV** **(0-0-3-3)**
2	**Pre-requisite courses(s)**	None
3	**Course content**	Fluorescence microscopy to examine intracellular compartments, Cell fractionation and centrifugation methods, isolation of intracellular compartments by differential centrifugation techniques, nuclei, cytoplasm etc. Basics of cell culture methods: cell counting, culture media preparation. Proliferation and using live cell imaging and MTT assay, Purification and analysis of Immunoglobulins, Immunoprecipitation, Enzyme-linked immunosorbent assay (ELISA), Fluorescence-activated cell sorting (FACS) and analysis of cells Immunostaining and imaging,
4	**Texts/References**	NA