COURSE CURRICULUM FRAMEWORK UNDER AUTONOMY

Program: B.Sc.
Department: Life Sciences

Semester 1		
Course code	**Course Title**	**Credits**
SLSC101	**Life Sciences at the molecular and cellular levels** Features of living cells Macromolecules & Separation techniques Concept of prokaryotic and eukaryotic cells	02
SLSC102	**Introduction to plant and animal life processes** Multicellularity, specialized function and physiology Life processes – I Life processes – II	02
SLSC1PR	SEMESTER – I PRACTICALS	02

Semester 2		
Course code	**Course Title**	**Credits**
SLSC201	**Life Sciences at the molecular and cellular levels** Features of living cells Energy Metabolism Cytoskeleton, Structure of Cell Wall and Cell division	02
SLSC202	**Elementary genetics, ecology and behaviour** Genetics I Genetics II Ecology and Behaviour	02
SLSC2PR	SEMESTER – II PRACTICALS	02

Semester 3		
Course code	**Course Title**	**Credits**
SLSC301	**Comparative Physiology** Homeostasis Control and Coordination in plants and animals Developmental Biology	**3**
SLSC302	**Life processes at the tissue, organ and organism levels: A Biochemical Approach** Enzymes Metabolism - Energy from Carbohydrates Metabolism - Energy from Lipids and Proteins	**3**
SLSC303	**Population approach: Population and communities as regulatory unit** Concepts in Evolution and Population Genetics Biostatistics Bioinformatics	**3**
SLSC3PR	**Practicals of SLSC301, SLSC302, and SLSC303**	**2.5**

Semester 4		
Course code	**Course Title**	**Credits**
SLSC401	**Comparative Physiology** Homeostasis to stress Homeostasis during infections Infectious Diseases, Basics of Clinical Trials & Medical Pharmacology	**3**
SLSC402	**Life processes at the tissue, organ and organism levels: A Biochemical Approach** Metabolism - Anabolism of biomolecules DNA Replication & Transcription Translation & Regulation of gene expression	**3**
SLSC403	**Population approach: Population and communities as regulatory unit** Evolution and its consequences Biostatistics Bioinformatics	**3**
SLSC4PR	**Practicals of SLSC401, SLSC402, and SLSC403**	**2.5**

Semester 5		
Course code	**Course Title**	**Credits**
SLSC501	**Genetics & Immunology I** The Genetic material. Mechanisms of Inheritance and variation in Prokaryotes and Bacteriophages. Overview and cells and organs of immune system. Antigen recognition and Effector Mechanisms.	**4**
SLSC502	**Developmental Biology & Neurobiology I** Developmental Biology – Model organisms. Animal Development. Introduction to Behaviour and the Nervous System. Cellular Organization of the Nervous System.	**4**
SLSC503	**Fermentation technology & Genetic engineering: A Biotechnological approach I** Fermentation technology – Principles. Fermentation technology - Food and Beverage Production. Principles of Gene Cloning. Cloning and Screening Techniques	**4**
SLSC504	**Environmental Biotechnology I** Introduction to Fundamentals of Environmental Science. Biodiversity and its Conservation. Pesticides and Toxicology Management. Sustainable Development and Entrepreneurship Development.	**4**
SLSC5PR1	**Practical of SLSC501 and SLSC502**	**4**
SLSC5PR2	**Practical of SLSC503 and SLSC504**	**4**

Semester 6		
Course code	**Course Title**	**Credits**
SLSC601	**Genetics & Immunology II** Mechanisms of Inheritance and variation in Eukaryotes. Mutational Variation and Techniques in Molecular Genetics. Hypersensitivity, Vaccines and Immunodeficiency. Transplantation, Tumour Immunology, Tolerance and Autoimmunity.	**4**
SLSC602	**Developmental Biology & Neurobiology II** Cellular Aspects of Development. Applications of Developmental Biology. Sensory and Motor System. Neurobiological Diseases.	**4**
SLSC603	**Fermentation technology & Genetic engineering: A Biotechnological approach III** Enzyme and Pharmaceuticals Production. Tissue Culture biotechnology. Genetic Engineering. Tools in genetic engineering & Bioinformatics.	**4**
SLSC604	**Environmental Biotechnology II** Human Population and Urbanization. Renewable and Non-Renewable Resources. Environmental Management. Safety, Health and Environment.	**4**
SLSC6PR1	**Practical of SLSC601 and SLSC602**	**4**
SLSC6PR2	**Practical of SLSC603 and SLSC604**	**4**