SCHEME OF EVALUATION

B.Sc. -BIOTECHNOLOGY

B.Sc. Biotechnology: Semester-I BST 101: Introduction to Biotechnology	
Teaching Scheme Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	**Examination Scheme** Class Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: - General knowledge of Biotechnology of intermediate standard

Course Objectives:

1. To give an overview of biomolecules and their significance
2. To give basic knowledge of Structure, biosynthesis and function of Macromolecules (Carbohydrates, Proteins and Lipids).
3. To have an overview of Microorganism: Origin of microbiology, Types of microbes, Classification of microbes.
4. To explain about the Introduction Genes & Genome.
5. To explain the Bioinformatics, Biological databases (nucleotide and Protein Databases, Structure databases).
6. To explain the Basic Local Alignment Search Tool (BLAST) & its types.

Course Outcomes:

After completing the course, students will be able to:

CO1: Understand various applications of Biotechnology

CO2: Analyze various biomolecules and their significance, structure and function

CO3: Identify different types of microbes and their importance

CO4: Understand the concept of databases used in sequence alignment

CO5: Knowledge of Genes and their impact

CO6:To understand the biodiversity analysis tools

Detailed Syllabus

UNIT-1 Introduction of Biomolecules
Introduction of Biomolecules - Structure and dynamics, Structure, biosynthesis and function of Macromolecules (Carbohydrates, Proteins and Lipids), Enzymes: History, Nomenclature & Classification of Enzymes, Intracellular and Extracellular Enzymes, Purification and characterization of enzymes from natural sources, industrial application of enzymes
UNIT-2 Cell as a basic Unit of life
Cell as a basic UNIT of life, Microorganism: Origin of microbiology, Types of microbes, Classification of microbes macro and micro molecules required for growth of microorganism, Media: defined and undefined, Study of Microbes (culture techniques and staining method), Application of microbes in fermentation biotechnology, Basics of Chromatography: Concept, types and Application.
UNIT-3 Central Dogma of Life

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Department of Biotechnology
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Dean
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Registrar
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Central Dogma of Life, Introduction Genes & Genome, Human Genome Project, Concept of Annotation, ORF & Gene Prediction, Genome similarity, Single Nucleotide Polymorphism (SNP), comparative genomics. History of Bioinformatics, Biological databases (nucleotide and Protein Databases, Structure databases), Primary and Secondary Database, Information retrieval from Databases, Sequence file formats. Basics of pattern matching and Sequence Analysis, Basic Local Alignment Search Tool (BLAST) & it's types.

Text and Reference Books

1. H.K.Dass, "Text book of Biotechnology" (Wiley India publication)
2. B.D.Singh,"Biotechnology" (Kalyani Publishers)
3. R.C.Dubey, "Text book of Biotechnology" (S. Chand and company)
4. William J. Thiemann," Introduction to Biotechnology", Michael A. Palladino, Publisher: Benjamin Cummings.
5. Colin Ratledge," Basic Biotechnology Publisher": Cambridge University Press

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