

SEMESTER 1st to 3rd
MULTIDISCIPLINARY COURSE
BTG022I BIO-TECHNOLOGY (INTRODUCTION TO BIO-TECHNOLOGY)

CREDITS: 03

Objective: *This course is aimed to introduce students to basic concepts of Biotechnology and its relevance in contemporary times.*

Expected Learning Outcomes:

1. *Understanding of Biotechnology as a discipline.*
2. *Understanding the flow of information in a cell and basics of recombinant DNA technology.*
3. *Understanding the applications of Biotechnology.*

UNIT I:

Definition, Scope and Milestones in Biotechnology.

Overview of Structure and Functions of Biomolecules - Carbohydrates, Proteins, Lipids and Nucleic acids.

UNIT II:

Central Dogma (Flow of information in a Cell) - Replication, Transcription and Translation.

Introduction to Recombinant DNA Technology.

Human Genome Project - Goals and Applications.

UNIT III:

Applications of Biotechnology in Agriculture (Golden rice and *Bt* Cotton); Human Health (Antibiotics, Vaccines, *Insulin* and *DNA finger printing*); Environment (Bioremediation and Biofuels)

BOOKS RECOMMENDED:

1. *Lehninger Principles of Biochemistry*, Nelson and Cox, WH Freeman.
2. *Introduction to Biotechnology*, William Thieman and Michael Palladino Benjamin Cummings Publishing Company.
3. *Biotechnology*, Satyanarayana, Books & Allied Ltd.
4. *Molecular Biotechnology: Principles and Applications of Recombinant DNA*, Bernard R. Glick, Cheryl L. Patten, ASM Press.
5. *Biotechnology Fundamentals and Applications*, S.S. Purohit, Agrobios.