

## Syllabus for Lateral Entry Examinations

### Bio –Technology

#### 1. Physics

**Optics:** Interference, Diffraction, Polarization

**Lasers:** Spontaneous and stimulated emission, Laser action, Ruby laser, He-Ne laser.

**Spectroscopy:** Microwave, Infrared, Raman, UV-Visible spectroscopy, X-ray diffraction, Nuclear magnetic resonance

**Books:**

1. Optics by A. K. Ghatak

2. Concepts of modern physics by Arthur Beiser

3. Fundamentals of Molecular Spectroscopy by C. N. Banwell

#### 2. Mathematics

Differential and Integral Calculus

Differential equation

Matrices and Determinants

**Books:** 10+2 books (CBSE)

#### 3. Computer science

**Computer and programming:**

Introduction to computers, Structured programming in C, Data types, Control flow, Selection, Looping, Array, String, Pointer, Function, Structure, Union, Iteration, File I/O, Linked list. Number system and representation, Fixed and Floating point numbers, Binary arithmetic, Character representation,

#### 4. Foundation course in Biology

Structure of cell organelles, Bacteria and viruses

Cell division, Structure of DNA, RNA, Protein, Biomolecules

Animal and Plant Physiology, Photosynthesis

**Books:** Biological Science, D. J. Taylor, N.P.O .Green and G.W. Stout (Ed), R. Soper

#### 5. Biochemistry

Chemistry of Biomolecules

Basic concepts of biochemistry (Concepts of thermodynamics, general information about carbohydrates, protein and lipids), Enzymes,

Membranes structure and composition, Metabolic pathways, (anabolism and catabolism) metabolism of carbohydrates, protein and lipid, Oxidative phosphorylation Protein structure

**Books:** Biochemistry by Stryer

Principles of Biochemistry: Albert L. Lehninger, David L. Nelson, Michael M. Cox

#### 6. Genetics

Introduction to Genetics,

Basic principles of Mendelian experiments and exceptions,

Chromosome theory of inheritance,

Linkage, crossing over and mutation,

Extra Chromosomal Inheritance,

Population Genetics

**Books:**

1. An Introduction to Genetic Analysis. Griffiths et al.

2. Genetics by Strickberger

3. Principles of Genetics. E J Gardner, M J Simmons and D P Snustad

## 7. **Environmental Studies**

Ecology, Types of Ecosystems, Air, Water & Land, chemical, noise pollution, sources & causes, effects, Electronic waste, nuclear hazards

### **Books:**

1. Benny Joseph, Environmental Studies Simplified, 3rd Edition, McGraw Hill Education, India, Published 2nd August, 2017
2. Erach Bharucha, Textbook of Environmental Studies for UG Courses, 3rd Edition, Orient Black Swan, Published 1st Jan 2013