

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 3

Bio-Technology

Subject Code 130401

Subject Name INTRODUCTORY BIOLOGY

Sr.No	Course content
1.	The Living World : Biology as “The Science of Life” , Nature and Methods of Science , Biology in Ancient India, Contribution of Aristotle, Emergence of Contemporary Biology, Use and Misuse of Biology , Careers in Biology, Unified and Basics Characteristics of Organisms, Analyzing the Living Things, The Energy Transfer Devices of Life, Metabolism is the total of all chemical reactions, Homeostasis, Growth, Development and Reproduction, Adaptation, Death
2.	Origin and Evolution of Life : Origin of Life, The Meaning of Evolution, Ideas of Evolution before Darwin, Evidence of Evolution, Theories of Evolution, Modern Views of Darwinism, The Genetic Basis of Adaptation, Speciation and Isolation, Concept of species
3.	Plant and Animal Organization : Morphology of flowering plants – root, stem, leaf, flower, inflorescence, fruit and seed, Dispersal of fruits and seeds, Defensive mechanisms in plants, Internal structure of flowering plants, plant tissue and tissue types, internal structure of monocot and dicot plant, secondary growth, basics characteristics of animal tissues, types of animal tissues – epithelial, connective, muscular and nervous tissues.
4.	Plant Physiology : Plant-water relations – water potential, absorption and movement of water, transpiration, Plant nutrition – micronutrients and macronutrients, mechanism of absorption, nitrogen metabolism, Photosynthesis – basics concepts, light reaction, dark reaction, C3-Cycle, C4-Cycle, factors affecting photosynthesis, Types and mechanism of respiration, respiratory quotient
5.	Animal Physiology : Foods and nutrients of animals, Modes of nutrition in animals, human digestive system, Hormonal control of digestion in human, Absorption and Assimilation of digested product in human, Nutritional deficiencies and disorders, Gaseous exchange in animals, respiration in human, respiratory disorders, Circulatory system in human, disorders related to human circulatory system, Movement and locomotion in animals, basics of human nervous system, basics of human endocrine system.

Reference Books:

1. Biology, Textbook for class XI, NCERT
2. Biology, Textbook for Class XII, NCERT