

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Biomedical Engineering

Semester: 3

Subject Code

Subject Name HUMAN BIOLOGY

Sr. No.	Course content
1.	Cell and Tissues 1.1 Structure & function of cell, cell specification 1.2 Cell electrophysiology- depolarization, repolarization, characteristics, Resting membrane potential, action potential 1.3 Different types of tissues & their function
2.	Hematology 2.1 Composition of blood 2.2 Blood function 2.3 Blood groups
3.	Cardiovascular System 3.1 Anatomy of heart, cardiac muscle & its properties. 3.2 Blood vessels & circulation of blood. 3.3 Conduction system and electrical activity of heart 3.4 Blood pressure, blood flow, cardiac output, heart rate and pulse 3.5 Brief mention of diseases & instruments related to heart
4.	Respiratory System 4.1 Anatomy of respiratory system, nose, pharynx, larynx, trachea, bronchi & lungs 4.2 Mechanism of respiration, gases exchange 4.3 Respiratory parameters: various volumes & capacities 4.4 Brief mention of diseases & instruments related to respiration
5.	Digestive System 5.1 Organs of digestive system 5.2 Juices secreted by various digestive organs & their functions 5.3 Brief mention of diseases & instruments related to digestive system
6.	Excretory & Endocrine System 6.1 Anatomy of urinary system –kidney, ureter urinary bladder. 6.2 Formation of urine & micturition 6.3 Skin system, structure & functions of skin 6.4 Introduction to endocrine glands & their functions
7.	Reproductive System 7.1 Male reproductive system 7.2 Hormones secreted & their functions 7.3 Female reproductive systems 7.4 Hormones secreted & their functions
8.	Locomotor System 8.1 Types of bones and joints 8.2 Muscles & their functions 8.3 Brief mention of diseases & instruments related to Locomotors system

9.	Nervous System 9.1 Neurons 9.2 Central Nervous System (CNS) 9.3 Brain 9.4 Spinal cord 9.5 Peripheral Nervous System. 9.6 Autonomic Nervous System (ANS) 9.7 Brief mention of diseases & instruments related to nervous system.
10.	Special Senses 10.1 Anatomy of Ear & Eyes 10.2 Functions of Ear & Eyes 10.3 Sense of Smell & Test 10.4 Mention of diseases & instruments related to above organs.

Note: (1) Faculty should teach with the help of following Demonstrations:

Understanding structures of following systems using models, charts and CDs.

- a)Heart
- b)Respiratory
- c)Digestive
- d)Kidney
- e)Reproductive
- f) Loco motor
- g) Brain
- h) Eye
- i) Ear

Note : (2) This course must be taught by expert faculty such as doctors (MBBS level) and B.pharm

Reference Books:

1. Anne Waugh, Allison Grant Ross & Wilson Anatomy & Physiology In Health & IllnessElsevier Churchill Livingstone International Edition.
2. Armstrong &Jackson Anatomy & Physiology For Nurses B .I. Publication.
3. Dr. C.Chatterji Human Physiology Vol I & II Medical Allied Agency.
4. John G.Webster,Eiditor Medical Instrumentation-Application & Design John Wiley And Sons (Asia) Pvt. Ltd