

4191 - HUMAN BIOLOGY TECHNIQUES AND APPLICATIONS - I										
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)					
					Theory		Practical Ex.		Total	
Lectures	Practical	Credits	25	25	3 Hrs	100	-		150	
3	3	6								
Pre-requisite		Source	Semester	Theory	Test	Total	TW	PR	Gr Total	
Nil		MEX		75	25	100	25	-	125	

Rationale : -In order to understand the interaction of medical equipment with the human body the students would have basic knowledge of various systems, related organs, secreted fluids, etc in the human body. The emphasis will be on location and function of organs and systems; Electric signals produced in the body cells and Medical technology

COURSE CONTENTS		Hrs	Mks
1. CELL PHYSIOLOGY Cell and its organelles, reproduction, growth, aging and differentiation. Cell electro-physiology:- Resting and action potential Cellular response to environment. Cell specialisation:- Nerve cell, skeletal, smooth and cardiac muscle.		6	15
2. MUSCLE ELECTRO-PHYSIOLOGY Nerve muscle preparation and muscle curve. Generation of action potentials.		6	15
3. C.V.S. (CARDIAC VASCULAR SYSTEM) Anatomy of the heart, cardiac muscle, its special properties, electric activity of the heart, special conduction tissue of the heart, cardiac cycle, blood pressure.		10	20
4. HEMMATOLOGY Blood - its function, haemoglobin estimation, blood group determination, study of blood cells, various blood tests commonly performed - total count, differential count, ESR, and platelet count.		13	25
5. RESPIRATORY SYSTEM Anatomy of the respiratory tract, their functions, mechanism of respiration, lung volumes, abnormal and artificial respiration		13	25
Total		48	100

PRACTICALS:

The practicals will be demonstrated to and performed by the students. The students will maintain a journal and the same will be certified by the teacher concerned.

1. Blood pressure measurement by Sphygmomanometer.
2. Pco₂ Measurement - (measurement of haemoglobin saturation in blood).
3. Blood sample
4. Microscope
5. Haemoglobin estimation by Sahli's haemoglobinometer.
6. ESR estimation by Wintrobe's method.
7. Blood cell counting- Neubauer's chamber.
8. Lung volume measurement by spirometer.

REFERENCE BOOKS:

1. Anatomy and Physiology for nurses. (ELBS Edition) by W. Gordon Sears & R. S. Winwood
2. Human Physiology Part I & II by C.C Chatterjee
3. Expt. handbook of Physiology and Biochemistry (J. P. Medical Publisher) by Dr P. V. Chaddha