



Course Title: Human Physiology
Course Code: BIOT205
Credit Units: 04

L	T	P/S	SW/F W	TOTAL CREDIT UNITS
3	-	2	-	04

Course Objectives:

This course provides an introduction to human physiology from the cellular to the systemic level Its main objective is to establish the concept that physiology is not simply a set of individual biological components and functions, but that systems work together as an integrated unit to maintain health and well-being.

Pre-requisites: Biology/ Life Sciences

Student Learning Outcomes:

At the end of the course the learner shall be able to:

- Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.
- Assess the relative contribution of each organ system to the maintenance of homeostasis.
- Explain physiological processes of all body systems in detail and on an appropriate level (knowledge, comprehension, application and analysis)
- Understand the physiological mechanisms underlying the normal functioning of various Systems of the human body, from applied and practical viewpoints.
- Explain how the activities of organs are integrated for maximum efficiency

Course Contents/Syllabus- Theory:

	Weightage (%)
Module I Homeostasis	10%
Homeostasis, control of Homeostasis, Feedback systems (negative and positive), Examples of negative and positive feedback cycles	
Module II Body Fluids	15%

Sources of body water gain and loss, regulation of body water gain and loss, concentration of electrolytes in body fluids, (Sodium, Potassium, Chloride, Bicarbonate, Calcium, Phosphate and Magnesium), Actions of the buffer systems (Protein, Carbonic acid-Bicarbonate Buffer systems) Workshop: Capitalization and Ownership for New Ventures	
Module III Regulatory Physiology	20%
Chemical messengers (primary and secondary), Receptors and intranuclear signaling events, Agonists-endocrine, paracrine and autocrine Signaling	
Module IV Endocrine Physiology	20%
Hypothalamo-hypophysial complex and its significance, Structure and Major hormones of Hypothalamus, pituitary, adrenal, thyroid, pancreas, pineal glands and their respective roles	
Module V Nervous System	20%
Structure, functions and organization of the Nervous System, Structure of a Neuron, Conduction of nerve impulse, Signal transmission at Synapse (Electrical and Chemical), Reflex Arc.	
Module VI Reproductive Physiology	15%
Structure of Testis and Ovary, Spermatogenesis, Oogenesis, Hormonal control of Testis, Hormonal Regulation of the female reproductive cycle.	
List of Experiments:	
<ul style="list-style-type: none"> • Determination of Blood Groups and Rh factor. • To study the osmotic fragility of RBCs of human blood using isotonic, hypotonic and hypertonic solutions of 	

NaCl.

- Determine the bleeding time of human blood.
- Determine the clotting time of human blood.
- Enumeration of blood platelets using haemocytometer.

To observe and comment on histological slides of : Ovary, Testis, Liver, Pancreas, Spleen, Lymph nodes, Thymus.

Pedagogy for Course Delivery:

Lectures: 43

Class Test: 2

Total: 45

Lab/ Practical details, if applicable:

Practical: 28

Class Test: 2

Total: 30 sessions

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	End Term Examination
75	25	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class Test 1	Class Test 2	Home Assignment	Attendance	
Weightage(%)	10	10	5	5	70

Lab/ Practical/ Studio Assessment:

	Continuous Assessment/Internal Assessment				End Term Examination					
Components (Drop down)	Performance	Lab record	viva	Attendance	Lab record	Performance	Viva	Total		
Weightage (%)	10	10	5	5	10	40	20	100		

Text:

- Text Book of Medical Physiology , 11th Edition, Guyton & Hall , 1999, ISBN 0-7216-0240-1