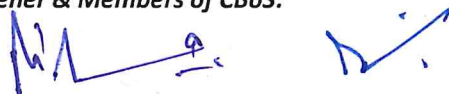


**FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)**  
**Department of Biochemistry**  
**Course Curriculum**

<b>PART- A: Introduction</b>			
<b>Program: Bachelor in Science</b> <i>(Honors/Honors with Research)</i>		<b>Semester - VII</b>	<b>Session: 2024-2025</b>
1	<b>Course Code</b>	BCSE-05 T	
2	<b>Course Title</b>	Human Physiology	
3	<b>Course Type</b>	Discipline Specific Elective (Theory)	
4	<b>Pre-requisite (if, any)</b>	As per the Program	
5	<b>Course Learning Outcomes (CLO)</b>	<p><i>On successful completion of the course, the student shall be able to:</i></p> <ul style="list-style-type: none"> <li>➤ Understand mechanism of signal transduction by steroid and polypeptide hormones and the role of second messengers in signal transduction.</li> <li>➤ Explain the process of gaseous exchange in tissues and lungs, respiratory adaption to high altitude and the difference between hemoglobin and myoglobin.</li> <li>➤ Explain muscular dystrophies, the role of steroids in muscle building and the use of hormones in cattle and poultry industry.</li> <li>➤ Explain role of kidney in erythropoiesis.</li> </ul>	
6	<b>Credit Value</b>	<b>3 Credits</b>	<i>Credit = 15 Hours - learning &amp; Observation</i>
7	<b>Total Marks</b>	<b>Max. Marks: 100</b>	<b>Min Passing Marks: 40</b>
<b>PART -B: Content of the Course</b>			
<b>Total No. of Teaching-learning Periods (01 Hr. per period) - 45 Periods (45 Hours)</b>			
<b>Unit</b>	<b>Topics (Course contents)</b>		<b>No. of Period</b>
<b>I</b>	<p><b>Neurotransmission:</b> Types of neurons, generalized structure of multi polar neuron. Resting membrane potential, Action potential, Transmission of nerve impulse along an axon and across synapse. Neurotransmitters and inhibitors of neurotransmission.</p> <p><b>Muscle:</b> Types of muscles and structure. Ultra structure of skeletal muscle. Contractile and regulatory proteins of muscle. Sliding filament model of skeletal muscle contraction.</p> <p><b>Bone:</b> Composition and structure of long bone, growth and remodeling of long bone. Factors affecting its growth.</p>		<b>12</b>
<b>II</b>	<p><b>Excretory system:</b> Structure of the nephron, formation of urine – Glomerular filtration, tubular re-absorption and secretions.</p> <p><b>Body fluids:</b> Blood volume, composition and functions, RBC, WBC and platelets, the structure and functions. Mechanism of blood coagulation. Biochemical events in transport of CO<sub>2</sub> and O<sub>2</sub> in blood. Cerebrospinal fluid, lymph and its function. Blood brain barrier.</p>		<b>11</b>
<b>III</b>	<p><b>Heart and lungs</b>—Structure and function of cardiac tissue and lungs Acid-base balance: Maintenance of normal pH of the body fluids. Blood buffers. Role of lungs And kidney in acid base balance.</p> <p><b>GIT and Liver:</b> Structure and function of gastrointestinal tract, Structure of a lobule, functions—metabolic, storage and detoxification.</p>		<b>11</b>
<b>IV</b>	<p><b>Endocrine system:</b> Endocrine organs, classification of hormones. Dynamic balance and regulation of hormone secretions. Functions of the hormones of hypothalamus, pituitary, adrenal, thyroid, pancreas and gonads. General mechanism of hormone action. Concept of messengers eg: cAMP, DAG, IP<sub>3</sub>.</p>		<b>11</b>
<b>Keywords</b>	Heart, Liver, Kidney, Bone, Brain, Neurons		

Name and Signature of Convener & Members of CBoS:



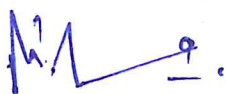
**PART-C: Learning Resources****Text Books, Reference Books and Others****Text Books Recommended –**

- Concise Medical Physiology– Choudhary – New Central Book Agency–Calcutta.
- Text Book of Medical Physiology–Guyton–Prism Books Pvt. Ltd.–Bangalore.
- Harper’s Biochemistry–Murray, Granner, Mayes, and Rod well – Prentice Hall International Inc.
- Text book of medical physiology: A. C. Gyton , and J.E Hall Saunders Elsevier.
- Human Physiology, Vol. I & II,-C. C. Chatterjee – Medical Allied Agency–Calcutta.

**PART -D: Assessment and Evaluation****Suggested Continuous Evaluation Methods:****Maximum Marks: 100 Marks****Continuous Internal Assessment (CIA): 30 Marks****End Semester Exam (ESE): 70 Marks**

<b>Continuous Internal Assessment (CIA): (By Course Teacher)</b>	Internal Test / Quiz-(2): 20 +20	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks
	Assignment / Seminar - 10	
	Total Marks - 30	
<b>End Semester Exam (ESE):</b>	<b>Two section – A &amp; B</b>	
	Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks	
	Section B: Descriptive answer type qts., 1out of 2 from each unit-4x10=40 Marks	

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**FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)**  
**Department of Biochemistry**  
**Course Curriculum**

<b>PART- A: Introduction</b>			
<b>Program: Bachelor in Science</b> <i>(Honors/Honors with Research)</i>		<b>Semester - VII</b>	<b>Session: 2024-2025</b>
1	<b>Course Code</b>	BCSE-05 P	
2	<b>Course Title</b>	Human Physiology	
3	<b>Course Type</b>	Discipline Specific Elective (Practical)	
4	<b>Pre-requisite (if, any)</b>	<i>As per Program</i>	
5	<b>Course Learning Outcomes (CLO)</b>	<p><i>On successful completion of the course, the student shall be able to:</i></p> <ul style="list-style-type: none"> <li>➤ Understand Qualitative and quantitative analysis of biological molecules and their estimation using multiple methods</li> <li>➤ Demonstrate the process of gaseous exchange in tissues and lungs, respiratory adaption to high altitude and the difference between hemoglobin and myoglobin.</li> <li>➤ Explain muscular dystrophies, the role of steroids in muscle building.</li> </ul>	
6	<b>Credit Value</b>	1 Credits	<i>Credit =30 Hours Laboratory or Field learning/Training</i>
7	<b>Total Marks</b>	<b>Max. Marks: 50</b>	<b>Min Passing Marks: 20</b>
<b>PART -B: Content of the Course</b>			
<b>Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)</b>			
<b>Module</b>	<b>Topics (Course contents)</b>		<b>No. of Period</b>
<b>Lab./Field Training/ Experiment Contents of Course</b>	<ul style="list-style-type: none"> <li>➤ Preparation of blood smear and differential leukocyte count.</li> <li>➤ RBC and WBC counting, Calculation of blood Indices.</li> <li>➤ Estimation of hemoglobin</li> <li>➤ Colorimetric estimation of Protein by Lowry's method.</li> <li>➤ Estimation of Uric acid.</li> <li>➤ Urea by DAMO method.</li> <li>➤ Creatinine by Jaffe's method.</li> <li>➤ Phosphorous by Fiske and Subbarow's method.</li> <li>➤ Iron by Wong's method.</li> <li>➤ Qualitative analysis of urine-detection of urea, uric acid and creatinine.</li> </ul>		<b>30</b>
<b>Keywords</b>	RBC, WBC, Serum Protein, Estimation, plasma minerals.		

Name and Signature of Convener & Members of CBoS:




<b>PART-C: Learning Resources</b>		
<b>Text Books, Reference Books and Others</b>		
<i>Text Books Recommended –</i>		
<ul style="list-style-type: none"> <li>➤ Text Book of Medical Physiology–Guyton–Prism Books Pvt.Ltd.–Bangalore.</li> <li>➤ Harper’s Biochemistry–Murray, Granner,Mayes,andRodwell– Prentice Hall International Inc.</li> <li>➤ Text book of medical physiology:A.C.Gyton,andJ.E Hall Saunders Elsevier.</li> </ul>		
<b>PART -D: Assessment and Evaluation</b>		
<b>Suggested Continuous Evaluation Methods:</b>		
<b>Maximum Marks: 50 Marks</b>		
<b>Continuous Internal Assessment (CIA): 15 Marks</b>		
<b>End Semester Exam (ESE): 35 Marks</b>		
<b>Continuous Internal Assessment (CIA): (By Course Teacher)</b>	Internal Test / Quiz-(2): <b>10 &amp; 10</b> Assignment/Seminar +Attendance - <b>05</b> Total Marks - <b>15</b>	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against <b>15 Marks</b>
<b>End Semester Exam (ESE):</b>	<b>Laboratory / Field Skill Performance: On spot Assessment</b> A. Performed the Task based on lab. work - <b>20 Marks</b> B. Spotting based on tools & technology (written) – <b>10 Marks</b> C. Viva-voce (based on principle/technology) - <b>05 Marks</b>	<b>Managed by Course teacher as per lab. status</b>




**Name and Signature of Convener & Members of CBoS:**