

## HUMAN PHYSIOLOGY

Sem	Subject Code	Category	Lecture		Theory		Credits
III	21CNF3A	Core paper III	Total	Per week	Total	Per week	4
			60	4	60	4	

### Course Outcomes

On the successful completion of the course, students will be able to\_\_\_\_\_

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	The various physiological systems in the human body	K1
CO2	The functional anatomy of different organs in each system.	K2
CO3	The complex mechanisms of the processes of digestion, absorption, excretion, gas exchange, reproduction and neuromuscular coordination.	K2
CO4	Integrated System physiology that will enable understanding of the biochemical basis of disease.	K2
CO5	To understand the internal structure of various parts in human body.	K1,K2

**\*CO – Course Outcomes\*\*** (Each unit of the syllabus should have one course outcome statement)

**Knowledge level:** K1 – Remember, K2-Understand, K3- Apply, K4-Analyse.

**PO5-** Become a successful entrepreneur, professional and pursue higher education

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	M	M	M	M
CO2	S	M	M	M	M
CO3	M	S	M	M	M
CO4	M	S	M	M	M
CO5	M	M	S	S	S

S-Strong; M-Medium, L- Low

## **HUMAN PHYSIOLOGY**

### **OBJECTIVE**

The students will be able to

1. To acquire knowledge of the various physiological systems and organs in the human body
2. To understand the functioning of the various human body systems

### **UNIT I**

**12 Hours**

#### **DIGESTIVE AND EXCRETORY SYSTEM**

Functional anatomy of digestive tract, functions of salivary gland, stomach, small intestine, large intestine, liver and pancreas. Digestion and absorption of carbohydrates, proteins and lipids Structure of kidney, mechanism of urine formation. Role of kidney in maintaining acid-base balance. Micturition

### **UNIT II**

**12 Hours**

#### **CARDIOVASCULAR SYSTEM**

Blood- properties, composition and functions of blood and blood elements, erythropoiesis, blood groups, blood transfusion, blood coagulation. Heart- Structure and functions of heart, cardiac output, blood pressure and blood circulation-systemic and pulmonary. Factors affecting blood pressure. Cardiac cycle and electrocardiogram

### **UNIT III**

**12 Hours**

#### **RESPIRATORY SYSTEM**

Functional anatomy of respiratory system, mechanics of respiration, diffusion of gases - mechanism of respiration, regulation of respiration, hypoxia

### **UNIT IV**

**12 Hours**

#### **MUSCULAR SYSTEM**

Classification – structure of skeletal and smooth muscles. Mechanism of muscle contraction and relaxation. Disorders of skeletal muscles.

**Nervous system-** divisions, structure and functions of brain, spinal cord and neuron, transmission of nerve impulse. Autonomic nervous system. Cerebrospinal fluid and its functions

### **UNIT V**

**12 Hours**

**REPRODUCTIVE SYSTEM** Development of gonads and genitalia, testis and spermatogenesis, female reproductive system-oogenesis, physiological changes and hormones during menstruation, pregnancy, parturition and lactation.

**Distribution of Marks:** Theory – 25 (IA) + 75 (univ. exam) = 100 Marks

### **REFERENCES**

#### **TEXT BOOKS:**

<b>S.NO</b>	<b>AUTHORS</b>	<b>TITLE</b>	<b>PUBLISHERS</b>	<b>YEAR OF PUBLICATION</b>
<b>1</b>	Guyton, A.C. and Hall, J.E	Textbook of Medical Physiology, Twelfth Edition	Saunders Company Publishers, New York.	2010

2	Sembulingam, K. and Sembulingam, P	Essentials of Medical Physiology, Fifth Edition	J.P. Medical Publishers (P) Ltd, New Delhi	2010
3	Tortora, G.J. and Graabowski, S.R	Principles of Anatomy and Physiology, Twelfth Edition	John Wiley & Sons, New York	2009

#### REFERENCE BOOKS:

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1	Chandramouli, R	Textbook of Physiology, Third Edition	Jaypee Brothers Medical Publishers (P) Ltd. New Delhi.r	2010
2	Fox, S	Human Physiology, Twelfth Edition	WCB McGraw-Hill Publications, New York.	2010
3	Davies, A., Blackely, A.G.H. and Kidd, C,	Human Physiology	Churchill Livingstone, Toranto, Harcourt Publishers Ltd, New York.	2001.

#### Web Sources:

1. Link: Wikibooks' *Animal Behavior/Neurophysiology*: "Neurons", "Neurophysiology", and "Resting Potential" (HTML)
2. Link: Wikibooks' *Structural Biochemistry*: "Cell Signaling Pathways" (HTML)
3. Link: Wikibooks' *Human Physiology*: "The Nervous System" (HTML)
4. Link: Wikibooks' *Cellular Neurobiology*: "Neurotransmitter" (HTML)

#### TEACHING METHODOLOGY

- Chalk and board teaching
- Assignments
- Group discussions
- PPT
- Seminars
- Other Group activity

#### SYLLABUS DESIGNER:

- Ms. R. TAMILSELVI, Head and Assistant Professor, Department of Foods and Nutrition