Syllabus templateM.Sc. FOOD SCIENCE & NUTRITION SEMESTER I

Semester: I	
Course : Food Science & Nutrition	
Paper Title: Applied Physiology & Principles of Human health	
Paper code: M2C4FN260111T	**Credits:6**
Hours/week : 6	
Category: Core/MDC/SEC/VAC : CORE (Major)	
Theory / Practical / Composite : Theory	
No of Modules : 2 Modules	

Course Overview: Thiscourse provides a comprehensive overview of the normal functioning of various organ systems of the body and their interactions. It also comprehends the pathophysiology of commonly occurring human diseases. The role of various nutrients and their physiological contributions in human health will be enumerated in detailed.

Course Outcome:

1. Remember the current knowledge about the functional organization of the human body.

2. Understand the normal functioning of various organ systems of the body and their interactions.

3. Apply the knowledge to learnthe pathophysiology of commonly occurring diseases.

4. Analysethe process of energy production of the nutrients to be supplied to the human body.

5. Evaluatethe role of various nutrients and their role in human health.

6. Create and develop new approaches to diagnose human physiological disorders which are easier and less expensive.

Prerequisites: ***Basic knowledge about any prior course***

SYLLABUS

UNIT/Module	CONTENT	HOURS or NUMBER OF CLASSES	CO Mapping	COGNITIVE LEVEL
I. / I Module I- Basic Human Physiology	**Cell structure and function** General cell structure. Structure and functions of the organelles, cell membrane, review of structure and function of tissue, organs and systems.	**5**	**CO1,CO4,CO5**	**K1,K4,K5**
II. /I	**Gastrointestinal Physiology** i) Functions of Stomach, Liver, Pancreas and Gall Bladder ii) Composition, function and regulation of: a) Salivaryjuice b) Gastricjuice	**6**	**CO1,CO3,CO4, CO5**	**K1,K3,K4,K5**

	c) Pancreaticjuice d) Bilejuice e) Intestinal juice f) GI hormones g) Pathophysiological overview of some common diseases in relation to Gastrointestinal Tract (Peptic ulcer/GERD, Cholelithiasis, Portal Hypertension, Fatty liver and Liver Cirrhosis.			
III. /I	**Excretory Physiology** a) Urine formation b) Renal function tests c) Acid Base balance d) Pathophysiology of Renal Stones, Urinary Tract Infection, Glomerulonephritis	7	**CO1,CO3,CO4, CO6**	**K1,K3,K4,K6**
IV. /I	**Reproductive Physiology** a) Physiology of b) Menstruation and Menopause c) Physiology of Ageing d) Physiology of Pregnancy, Lactation Pathophysiology of PCOD and Infertility	5	**CO2,CO3,CO4, CO5**	**K2,K3,K4,K5**
V. /II Module II- Principles of Physiology and Health	**Blood and Cardio-Thoracic Physiology** a) Blood and Plasma Protein - Composition and Function b)Blood formation and factors controlling Erythropoiesis. c)Pathophysiology of Anaemia and Jaundice d)Cardiac cycle, Cardiac output, Heart sounds e)Heart structure, Heart rate & regulation f)Blood pressure, Hypertension g)Coronary Artery Disease h) Haemorrhage; Compensatory changes after haemorrhage	**7**	**CO2,CO3,CO4, CO5,CO6**	**K2,K3,K4,K5, K6**
VI. /II	**Respiratory system** a) Structure and function of Lungs b) Pathophysiology c) Transport and exchange of gases d) Major Respiratory diseases	5	**CO1,CO2,CO3, CO5,CO6**	**K1,K2,K3,K5, K6**

VII. /II	**Neuro Physiology** a) Review of structure and function of neuron, nerve, conduction of nerve impulse, synapse, and neurotransmitters. b) General organization of the nervous system, protection structure and function of brain and spinal cord. c) Cerebrospinal fluid.	5	**CO1,CO3,CO5, CO6**	**K1,K3,K5,K6**
VIII. /II	**Endocrine Physiology** a) Structure, function and role of sensory organs (skin, eyes, ears, nose and tongue) in perception of stimuli. b) Effects of Pituitary, Thyroid, Parathyroid, Adrenal and Pancreatic hormones c) Pathophysiology of Diabetes Mellitus/Metabolic Syndrome, Hashimoto's disease. Tetany and Cushing Syndrome d) Basic/ General treatment overview.	6	**CO1,CO2,CO3, CO5**	**K1,K2,K3,K5**
IX. /II	**Current understanding and modern approaches to the human diseases like** 1. Metabolic syndrome 2. Developmental disorders 3. Inherited disorders 4. Cancer chemotherapy	4	**CO1,CO2,CO3, CO6**	**K1,K2,K3,K6**

Text Books

1. Visual Anatomy & Physiology by Martini, Ober &Nath (published by Pearson)
2. Griffins, M. Introduction to Human Physiology, Mac Millan and Co. 1974.
3. Green, J.H. An introduction to human physiology, Oxfords University Press 1972.

Suggested readings

1. Kale, C.A. and Nail, E Samson Wright's Applied Physiology, Oxford University press, 1994.
Web Resources
1.
2.
Evaluation Theory CIA: 30 Semester Exam: 70
Paper Structure for Theory Semester Exam Module : Full marks 70 **Module 1: 35 marks** SHORT QUESTION: FROM 7 QTNS ANSWER 5 (EACH 1 MARK) = 5x1=5 LONG QUESTION: FROM 5 QTNS ANSWER 3 (EACH 10 MARKS)= 3x10=30 **Module 2: 35 marks** SHORT QUESTION: FROM 7 QTNS ANSWER 5 (EACH 1 MARK) = 5x1=5 LONG QUESTION: FROM 5 QTNS ANSWER 3 (EACH 10 MARKS)= 3x10=30

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
CO1	**Remember** the cell structure, function, human anatomy and physiology.	K1
CO2	**Understand**the basis of physiology for maintenance of good human health.	K2
CO3	**Apply** the knowledge of human body, physiologyand metabolism.	K3
CO4	**Analyse** the role of various anatomical structures in healthy human body.	K4
CO5	**Evaluate** the role of all biological systems and their interactions.	K5
CO6	**Create** and develop modernapproaches to study the Metabolic syndrome, Developmental disorders & Inherited disorders.	K6