

**B.Sc. FOOD & NUTRITION**

**– WARANGAL**

Under Graduate Courses (Under CBCS 2020

**B. Sc. I YEAR - SEMESTER - II**

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**PAPER-II: NUTRITIONAL BIOCHEMISTRY AND HUMAN PHYSIOLOGY (Theory)**

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**Theory: 4 hrs/week; Credits : 4 Marks : 100 (Internal-20, External-80) Practical:**  
**3 hrs/week; Credits : 1 Marks : 25**

**UNIT-I: MACRO NUTRIENTS**

- 1.1 Carbohydrates - Composition, classification, sources, functions, deficiency and excess, glycolysis, citric acid cycle, glycogenesis, glycogenolysis and gluconeogenesis
- 1.2 Lipids - Composition, classification, sources and functions; deficiency and excess of fats; essential fatty acids, beta-oxidation and synthesis of fatty acids.
- 1.3 Proteins- Composition, classification, sources, functions, deficiency and excess, basic steps in protein synthesis
- 1.4 Amino acids- Classification - chemical and nutritional; deamination, transamination and urea cycle

**UNIT II: MICRONUTRIENTS, WATER, ELECTROLYTES AND ENZYMES**

- 2.1 Vitamins - Classification, sources, functions and deficiency symptoms of fat soluble and water soluble vitamins
- 2.2 Minerals - Classification, sources, functions and deficiency symptoms of macro and micro minerals
- 2.3 Water - Functions, distribution, intake and elimination, water balance Electrolytes - Concentrations in intracellular and extra cellular fluids and osmotic pressure; acid base balance
- 2.4 Enzymes – Definition, classification (IUBMB), properties, mechanism of enzyme action

**UNIT III: CELL, CIRCULATORY SYSTEM, NERVOUS SYSTEM AND ENDOCRINE SYSTEM**

- 3.1 Cell- Structure & functions
- 3.2 Circulatory system- Parts & functions of heart, heart rate, cardiac cycle, cardiac output; blood pressure, Blood- Composition, coagulation and blood groups
- 3.3 Nervous system – Classification and functions
- 3.4 Hormones- Endocrine glands their secretion and functions

**UNIT-IV: RESPIRATORY, DIGESTIVE AND EXCRETORY SYSTEM**

- 4.1 Respiratory system- Parts and functions, mechanism of respiration; oxygen and Carbon- di-oxide transport
- 4.2 Digestive system- Parts and functions of GI tract, digestive glands, digestion, absorption and transport
- 4.3 Excretory system - Urinary system – parts and functions, structure of nephron, formation of urine
- 4.4 Skin: functions and its role in regulation of body temperature



**Dr. Estari Mamidala**  
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### **Books Recommended**

#### **Text Books:**

- Chatterjee C.C., Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta (1987).
- AVSS Rama Rao - A Text Book of Bio Chemistry, 9<sup>th</sup> edition, UBS Publishers distribution Pvt. Ltd, 2002.

#### **Reference Books:**

- Swaminathan N - A Handbook of Food and Nutrition, 5<sup>th</sup> edition volume 1, Bangalore printing and publishing Co.Ltd, 1986.
- Mahtab S. Bamji, N Prahlad Rao, Vinodini Reddy -Text book of Human Nutrition, 2<sup>nd</sup> edition, Oxford and IBH publishing Co. Pvt. Ltd 2004.
- Swaminathan M, Advanced Textbook on Food and Nutrition, Vol. I, Bappco.

**KAKATIYA UNIVERSITY**

**- TELANGANA**

**-21 onwards)**

  
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**PAPER-II: NUTRITIONAL BIOCHEMISTRY AND HUMAN PHYSIOLOGY (Practical)**


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1. Qualitative tests of carbohydrates
2. Qualitative tests of amino acids and proteins

3. Quantitative analysis of calcium by titrimetry
4. Quantitative analysis of vitamin C 2,6 dichloro indophenol dye method
5. Determination of rancidity parameters: acid value, peroxide value
6. Estimation of hemoglobin
7. Estimation of blood glucose
8. Identification of blood group
9. Estimation of urinary glucose
10. Estimation of urinary albumin

### **Books Recommended**

- Raghuramulu, Madhavan nair, Kalyansundram, A manual of laboratory techniques, NIN. Hyderabad (2003).
- Sawhney SK, Randhir Singh, Introductory practical biochemistry, Nasora Publishers, New Delhi (2000).



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