

- Pomeranz Yeshuraj, Food Analysis; theory and practice
- Matz A Samuel, Bakery Technology and Engineering
- Lavie A., 1979. Meat Handbook- AVI Publishing, Westport

### **FNH 402 PRINCIPLES OF NUTRITION**

**52Hrs (13× 4 units)**

#### **Course Outcome:**

*At the end of the course, students will gain-*

- CO 1. Knowledge about the total energy requirements, balance and its concepts depending on the individual specific needs.
- CO 2. An understanding of body composition and its changes through life cycle and the techniques of measuring body composition.
- CO 3. Knowledge regarding carbohydrate chemistry and its role in energy metabolism.
- CO 4. Knowledge of protein, its metabolism and importance in normal physiological function of the body.
- CO 5. Basic understanding of requirements, metabolism, functions and deficiencies of lipids.

**Unit I: Principles of nutrition** – Food as a source of nutrients, Nutritional classification of foods. Basis for computing nutrient requirements, latest concepts in dietary recommendations, RDA - ICMR and WHO: their uses and limitations. Body Composition. Changes in body composition through life cycle.

Energy Metabolism: -BMR, energy balance, physical activity, energy expenditure calculation of an average man and woman. Importance of water and fibers in human nutrition.

**Unit II:** Carbohydrates: Classification, functions, digestion and enzymes involved, absorption, assimilation, deficiency, metabolism, requirements and sources. Significance of carbohydrate as energy source; trends in dietary intake of carbohydrate. Glycemic index of foods – scope and significance, glycemic load of foods and its use. Artificial sweeteners.

**Unit III:** Proteins: Functions, digestion and enzymes involved, absorption, assimilation, Nitrogen balance, amino acid pool, requirements. Protein supplements. Quality of protein analysis, essential amino acids and therapeutic application of amino acid. Protein energy malnutrition – clinical features and biochemical changes.

**Unit IV:** Lipids: Significance of lipids and fatty acids, functions, deficiency, SFA, PUFA, MUFA, omega 3 fatty acids and omega 6 fatty acids, trans fatty acids, requirements and dietary guidelines, fat metabolism – digestion and enzymes involved, absorption and assimilation.

#### **REFERENCES**

- Honyman and Guthri- 2000. An introduction to the chemistry of carbohydrates
- Birch, G.G. et al., 1986. Food science- Pergamon press, New York
- Fennema, O R., 1976 Principles of Food Science (part- I Food Chemistry)- Marcel Dekker, USA,
- Guthrie A.H., 1986. Introductory Nutrition – 6<sup>th</sup> edition, the C.V. Mosby company
- Swaminathan M., 1991. Essentials of food and nutrition - Vol I and II, Ganesh & Co. Madras
- Berg JM, Tymoczko JL and Stryer L., 2002. Biochemistry 5<sup>th</sup> ed. WH Freeman