



MANGALORE UNIVERSITY

DEPARTMENT OF BIOSCIENCES

MSc Food Science & Nutrition

FNH 402 PRINCIPLES OF NUTRITION

52Hrs (13× 4 units)

Course Outcome:

- Develop skills to assess the total energy requirements, balance and its concepts depending on the individual specific needs.
- Identify body composition and its changes through life cycle and the techniques of measuring body composition.
- Describe carbohydrate chemistry and its role in energy metabolism.
- Describe protein, its metabolism and importance in normal physiological function of the body.
- Identify the requirements, metabolism, functions and deficiencies of lipids.

Unit I: Principles of nutrition - Body Composition. Changes in body composition through life cycle. Energy requirements (BMR, physical activity), energy balance, energy expenditure calculation of an average man and women. Importance of water and fibers. Compositional and proximate analysis of food.

Unit II: Carbohydrates: Classification, functions, digestion and enzymes involved, absorption, assimilation, deficiency, requirements and sources. Significance of carbohydrate as energy source; trends in dietary intake of carbohydrate.

Unit III: Proteins: Functions of protein, digestion and enzymes involved, absorption, assimilation, Nitrogen balance, amino acid pool, requirements and dietary intake trends, quality of protein analysis, essential amino acids and therapeutic application of amino acid.

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 Guthrie- 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 - 6th 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 5th ed. WH Freeman

