COMMON POOL OF GENERIC ELECTIVES (GE) COURSES

GENERIC ELECTIVES (GE-5): Food, Nutrition & Health
Zoo-GE-5

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Food Nutrition & Health Zoo-GE-5	04	02	00	02	Passed 12th Class	NIL

Learning Objectives

The learning objectives of this course are as follows:

- This course offers an overview of the concepts of normal food and nutrition required by the human body to maintain good health.
- To understand physiology, biochemistry, pathology, immunology, medicine, food science, and other fields with context to nutrition.
- Learn the concept of malnutrition, lifestyle-related disorders, addiction-related social health problems and eating disorders will be introduced.
- Appreciate knowledge that can be applied in everyday life.
- Learn the role of macronutrients and micronutrients, their nutritional requirements for different age groups during various health conditions.
- The students will be encouraged to pursue further studies in nutrition and health.

Learning Outcomes

By studying this course, students will be able to

- have an in-depth understanding of the dietary sources and role of nutrients in forming a balanced diet.
- appreciate the concept of nutritional requirements for different age groups and in pregnancy and lactation.
- know about the various food allergens and the body's hypersensitivity towards it.
- understand the concept of health and role of various nutrients in mitigating several deficiency disorders.
- identify and analyse the causes of malnutrition, lifestyle-related disorders, addiction-related social health problems and eating disorders.

- appreciate the various techniques from identification of adulterants, estimation of essential nutrients in food products, to measurement of vital anthropometric indicators of health, as widely used by practitioners.

SYLLABUS OF GE-5

UNIT-1: Basic concept of food and nutrition **2 hrs**

Components of nutrients (Macronutrients and Micronutrients).

UNIT-2: Dietary sources and physiological functions **6 hrs**

Carbohydrates, Proteins, Lipids Vitamins and Minerals (Iron, Iodine, Calcium, Selenium, Zinc); beneficial effects of dietary fibres; elementary idea of Probiotics, Prebiotics, Organic Food.

UNIT-3: Nutritional requirements **4 hrs**

Study of different age groups (infants, preschool children, school children, adolescents, adults, elderly) and in pregnant women and lactating mother.

UNIT-4: Concept of a balanced diet **4 hrs**

Food groups, Food Pyramid, Food and Culture; Food Hypersensitivity: Food allergy (nuts and seafood) and Food intolerance (lactose and gluten).

UNIT-5: Health **2 hrs**

Definition and concept of health. Indicators of metabolic health.

UNIT-6: Nutritional deficiencies and disorders **9 hrs**

Symptoms and prevention of the following: Protein Energy Malnutrition (Kwashiorkor and Marasmus), Vitamin deficiency (A, D, B1, B3 B12, C) Mineral deficiency (Iron, Iodine, Calcium, Selenium, Zinc).

Lifestyle-related diseases: Causes, Symptoms and Complications of Hypertension, Diabetes mellitus and Obesity. Role of dietary and lifestyle modifications for the prevention of these diseases.

Eating Disorders: Complications and Management of Anorexia nervosa and Bulimia nervosa.

UNIT-7: Social health problems **3 hrs**

Deleterious effects of addiction-related social health problems: Smoking, alcoholism, and drug dependence.

Practical **60 hrs**

(Laboratory periods: 15 classes of 4 hours each)

1. To detect adulteration in (a) Ghee (b) Sugar (c) Tea Leaves (d) Turmeric.
2. Study of nutrition labelling of any 5 popular packaged foods.
3. Study and comparison of food pyramids of any 3 popular diet trends with focus on their pros and cons.
4. Ascorbic acid estimation in food by titrimetry.
5. Estimation of calcium in food by titrimetry.
6. Measurement of anthropometric indicators of health (BMI, Waist to hip ratio, Skin fold test).
7. Plan the diet chart of any three different age groups using RDA values (infants, preschool children, school children, adolescents, adults and elderly).
8. An exercise based on 24-hour food recall of students for quantification and analysis of the macronutrients' and micronutrients' uptake based on the current RDA values (with focus on nutritional status and risk factors).
9. Project Work on the Indian government initiatives focused on nourishment of school children/ expectant mothers.

   OR

   A small-scale questionnaire-based survey on the knowledge and usage of available resources for quitting smoking and its success/relapse rates.

Essential/recommended readings

1. Gibney MJ et al (2009) Introduction to Human Nutrition, 2nd edition, Wiley-Blackwell, Hoboken
2. ICMR-NIN (2020) Expert Group on Nutrient Requirement for Indians, Recommended Dietary Allowances (RDA) and Estimated Average Requirement (EAR)
3. Elia M et al (2013) Clinical Nutrition, 2nd edition, Wiley-Blackwell, Hoboken

Suggested readings:

1. Mann J and Truswell AS (2017) Essentials of Human Nutrition, 5th edition, Oxford University Press. Oxford
2. Kaveri Chakrabarty and A.S. Chakrabarty (2020) Textbook of Nutrition in Health and Disease, 1st edition, Springer Nature Singapore Pte Ltd