ZH GE-VI Food, Nutrition and Health

Course Learning Objective:

The prime focus is to provide the students with a basic understanding of the relationship between food, nutrition and health. It is imperative that focus should be on realistic issues faced by people with respect to nourishment at all stages of life. Unhealthy eating habits particularly the shift from fresh food consumption to packaged foods with added salts and preservatives have contributed to the obesity epidemic in nearly all parts of the world. It is important to understand this link and change eating habits in accordance to one`s age, pregnancy, lactation and physical activity. By taking steps to eat healthy, one can obtain the nutrients required by the body to stay healthy, active, and strong. Mental health is also affected largely by our lifestyle. Apart from physical activity, the intake of the required vitamins, minerals and antioxidants also nourish the brain. Malnutrition is the main cause of impairment of growth in young children and infants and leads to diseases like Marasmus. Moreover, food hygiene including food and water borne infections along with food spoilage has also been covered in this course.

Course Learning Outcome:

Upon the completion of the course, students will be able to:

- Have a better understanding of the association of food and nutrition in promoting healthy living.
- Think more holistically about the relationship between nutrition science, social and health issues.
- Move on to do post-graduation studies and can apply for jobs as food safety officers, food analysts, food inspectors, food safety commissioners or controllers for jobs in organizations like FSSAI.
- Specialize in various fields of nutrition.

Course Content:
Theory [Credits: 4] 60 hrs

Unit 1: Basic concept of food and nutrition   13 hrs

Food Components and food-nutrients, Concept of a balanced diet, nutrient needs and dietary pattern for various groups- adults, pregnant and nursing mothers, infants, school children, adolescents and elderly. Food Pyramid, Nutritional anthropometry- BMI, waist- to-hip ratio, skin-fold test and bioelectrical impedance; interpretation of these measurements.

Unit 2: Nutritional Biochemistry   15 hrs

Carbohydrates, Lipids, Proteins, their dietary source and role Vitamins- their dietary source and importance Minerals- their biological functions. Dietary Fibres - Definition, their dietary source and nutritional importance. Elementary idea of Probiotics, Prebiotics, Organic Food.

Unit 3: Health   17 hrs

Definition and concept of health, Major nutritional Deficiency diseases- (kwashiorkor and marasmus), Deficiency disorders, their causes, symptoms, treatment, prevention and government programmes, if any. Life style related diseases- hypertension, diabetes mellitus, Atherosclerosis and obesity- their causes and prevention through dietary and lifestyle modifications, Social health problems- smoking,

alcoholism, drug dependence and Common ailments- cold, cough, and fevers, their causes and treatment.

Unit 4: Food hygiene   15 hrs

Food and Water borne infections; Bacterial infection: Cholera, typhoid fever, dysentery; Viral infection: Hepatitis, Poliomyelitis; Protozoan infection: amoebiasis, giardiasis; Parasitic infection: taeniasis and ascariasis their transmission, causative agent, sources of infection, symptoms and prevention; Brief account of food spoilage: Causes of food spoilage and their preventive measures.

Practical [Credits: 2]

1. To detect adulteration in a) Ghee b) Sugars c) Tea leaves and d) Turmeric
2. Estimation of Lactose in milk and diagnosis of lactose intolerance by measuring hydrogen gas during expiration.
3. Ascorbic acid estimation in food by titrimetry
4. Estimation of Calcium in foods by titrimetry
5.Study of the stored grain pests from slides/photographs (*Sitophilus oryzae*, *Trogoderma granarium*, *Callosobruchus chinensis* and *Tribolium castaneum*): their identification, habitat and food sources, damage caused and control. Preparation of temporary mounts of the above stored grain pests.
6. Visit to food testing lab /or any agency of food standards
7. Project work
8. Undertake computer aided diet analysis and nutrition counselling for different age groups.
9.Identify nutrient rich sources of foods (fruits and vegetables), their seasonal availability and price.
10. Study of nutrition labelling on selected foods

Teaching and Learning Process:

Assessment Methods:

Keywords:
Food, Nutrition, Health, Food Pyramid, Diseases

Recommended Books:

- Shashi Goyal & Pooja Gupta. Food, Nutrition and Health (ISBN: 9788121940924)
- Linda Tapsell. Food, Nutrition and Health. I Edition, , Oxford(ISBN: 978- 0195518344)

Lectures using PowerPoint and chalk-blackboard method & RBPT will be used to impart knowledge. Use of IT-CT facility will be integrated in the learning. Survey based short projects as assignments will help students to gain insight in the subject. Visit to prominent food and nutrition laboratories to learn about basic techniques will arouse interest among students.

- Quizzes, multiple choice questions, fill in the blanks and short answers
- Student presentation
- Take-home Assignments
- End of term theory and Practical examination

Suggested Readings:

- Avantina Sharma. Principles of Therapeutic Nutrition and Dietetics.. CBS Publishers and Distributors Pvt. Ltd.

- Elia M et al. (eds) Clinical Nutrition. Wiley-Blackwell A John Wiley & Sons Ltd.
- Gibney MJ et al. (eds) (2009) Introduction to Human Nutrition. Wiley-Blackwell A John Wiley & Sons Ltd, Nutritional Society.