

DISCIPLINE SPECIFIC ELECTIVE
DSE HP 5B2: Advanced Human Nutrition

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(if any)
		Lecture	Tutorial	Practical/ Practice		
Advanced Human Nutrition	4	2	0	2	XII Pass	Pass in Foundation of Food Science and Nutrition

Learning Objectives

- To understand the role of various nutrients, their requirements under normal and in special conditions with special reference to bioavailability.

Learning Outcomes

After completing this course, a student will be able to:

- Understand the importance of macro and micro-nutrients in a human body.
- Understand methods used for assessing nutrient requirements.
- Comprehend why and how the requirements change under special conditions.

SYLLABUS OF DSE HP 5B2

THEORY
(Credits 2; Hours 30)

UNIT I: Human Nutritional Requirements

20 Hours

- Historical perspective of nutrient requirements, terms used - EAR, RDA, AI, TUL
- Methods of assessment of nutrient needs – a critical review
- Biological role, sensitive methods of assessment, bioavailability, and other factors affecting requirements of nutrients
 - Energy
 - Carbohydrates and dietary fibre
 - Proteins and amino acids
 - Lipids and fatty acids
 - Water

- Fat soluble and water soluble vitamins
- Minerals

UNIT II: Nutrition under special conditions

10 Hours

- Extreme temperatures - Hot and cold
- High altitude
- Space nutrition
- Nutrition in emergencies

**PRACTICAL
(Credits 2; Hours 60)**

1. Methods of assessment of protein quality - Chemical score, NDpCal%
2. Measuring energy expenditure - Minute to minute activity record, GPAQ
3. Understanding fatty acid profile of commonly eaten foods
4. Understanding the dietary fibre (soluble and insoluble) profile of commonly eaten foods
5. Assessment of molar ratios of iron and vitamin C in given diets
6. Estimation of iodine content of salt
7. Estimation of carotenoid content of fruits/vegetables
8. Estimation of antinutritional factors affecting bioavailability -phytic acid / oxalates / tannins
9. Understanding the clinical signs of nutrient deficiency and excess

Essential Readings:

- Chadha R., Mathur P. Eds. (2015) Nutrition: A Lifecycle Approach. New Delhi: Orient Blackswan.
- NIN-ICMR. (2020) Nutrient Requirements -Estimated Average Requirements and Recommended Dietary Allowances.
- WHO/UNHCR/UNICEF/WFP. (2004). Food and Nutrition Needs in Emergency.

Suggested Readings:

- FAO/WHO. (2004) Vitamin and Mineral Requirements in Human Nutrition. Report of a Joint Expert Consultation.
- FAO/WHO/UNU (2004) Human Energy Requirements. Report of a Joint Expert Consultation. Rome.
- FAO/WHO/UNU (2007) Protein and Amino acid Requirements in Human Nutrition. Report of a joint WHO/FAO/UNU expert consultation WHO Technical Report Series 935. Geneva: WHO.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time