

**UNIVERSITY OF DELHI**

**Department of Home Science**

**Bachelor of Arts (Programme) with Nutrition and Health Education (NHE)**

**(SEMESTER - I)**

based on

Undergraduate Curriculum Framework 2022 (UGCF)

(Effective from Academic Year 2022-23)



**University of Delhi**

<b>Course Title</b>	<b>Nature of the Course</b>	<b>Total Credits</b>	<b>Components</b>			<b>Eligibility Criteria/ Prerequisite</b>	<b>Contents of the course and reference is in</b>
			<b>Lecture</b>	<b>Tutorial</b>	<b>Practical</b>		
Fundamentals of Nutrition	DSC-NHE-1	4	3	1	-	Class XII	Annexure-1
Introduction to Foods	DSC-NHE-A1	4	3	-	1	Class XII	Annexure-2

**DSC-NHE-1**

**Fundamentals of Nutrition**

Credits: 4 (Theory-3, Tutorial-1)

Theory- 45 Periods, Tutorial-15 Periods, Practical-Nil

**Objectives:**

1. To familiarize students with fundamentals of nutrition and their relation to health.
2. To study the functions, dietary sources and clinical manifestations of deficiency or excess of nutrients.
3. To create awareness about enhancing nutritional quality of food.

**Learning Outcomes:**

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

1. Understand basic concepts in nutrition and interpret relation between food, nutrition and health.
2. Describe functions, dietary sources and clinical manifestations of deficiency or excess of important nutrients.
3. Understand healthy cooking practices and minimizing nutrient losses.
4. Describe various methods of enhancing nutritional quality of food.

**Unit 1: Basic Concepts in Nutrition**

**7 Lectures**

- *Unit Description:* This unit will introduce the basic terms in nutrition
- *Subtopics:*
  - Basic terms used in study of nutrition – food, health, nutrients, nutritional status, malnutrition.
  - Macronutrients, micronutrients, nutraceuticals, phytochemicals, antioxidants and balanced diet.
  - Understanding relationship between food, nutrition and health.

**Unit 2: Energy, Macronutrients and Water**

**13 Lectures**

- *Unit Description:* This unit will introduce the students to energy components, macronutrients and water.
- *Subtopics:*
  - Energy- Components of energy expenditure and factors affecting energy requirement.
  - Classification, functions, dietary sources and clinical manifestations of deficiency/excess of the following:
    - Carbohydrates including dietary fibre.
    - Dietary fat and fatty acids; introduction to lipoproteins (LDL & HDL)

- Protein including protein quality

### Unit 3: Micronutrients

18 Lectures

- *Unit Description:* This unit will introduce the various vitamins and minerals present in foods.
- *Subtopics:*
  - Functions, dietary sources and clinical manifestations of deficiency /excess of the following:
    - Fat soluble vitamins – A, D, E and K.
    - Water soluble vitamins – thiamine, riboflavin, niacin, pyridoxine, folic acid, vitamin B<sub>12</sub> and vitamin C.
    - Minerals – calcium, iron, iodine, zinc, sodium and potassium.

### Unit 4: Enhancing Nutritional Quality of Food

7 Lectures

- *Unit Description:* This unit will explain ways to minimize nutrient losses and enhance nutritional quality of food
- *Subtopics:*
  - Minimizing nutrient losses during food preparation.
  - Enhancing nutritional quality by supplementation, germination, fermentation and fortification.

### Essential Readings:

1. Rekhi, T., & Yadav, H. (2015). *Fundamentals of Food and Nutrition*. Delhi: Elite Publishing House Pvt. Ltd.
2. Mudambi, S. R., & Rajagopal M. V. (2012). *Fundamentals of food, nutrition and diet therapy*; (6<sup>th</sup> ed.). Delhi: New Age International (P) Ltd.
3. Sethi, P., & Lakra, P. (2015). *Aahar Vigyan, Poshan Evam Suraksha*. Delhi: Elite Publishing House Pvt. Ltd.
4. Chadha, R., & Mathur, P. (2015). *Nutrition: A life cycle approach*. Delhi: Orient Blackswan.
5. Srilakshmi, B. (2018). *Food science* (7<sup>th</sup> ed.) Delhi: New Age International (P) Ltd.

### Suggested Readings:

1. Roday, S. (2013). *Food science and nutrition*. (2<sup>nd</sup> ed.). Oxford University Press.
2. Wardlow, G. M., & Hampl, J. S. (2019). *Perspectives in nutrition*. (11<sup>th</sup> ed.). New York, NY: McGraw Hill.
3. Agarwal, A., & Udipi. S. (2014). *Textbook of human nutrition*, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.

### Teaching learning Process

Conventional Chalk and Board Teaching, Power Point Presentation, Quiz, Interaction and Discussions, Demonstration

## **Assessment Methods**

As per University of Delhi guidelines.

## **Keywords**

- Nutrients
- Germination
- Fermentation
- Fortification

**DSC-NHE-A1**

**Introduction to Foods**

Credits: 4 (Theory-3, Practical-1)

Theory- 45 Periods, Practical-30 Periods

**Objectives:**

1. To familiarize students with definition and functions of food.
2. To explain the nutritional contribution, selection, changes in cooking and storage of different food groups.
3. To create awareness about various methods of cooking.

**Learning Outcomes:**

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

1. Know various functions of food and factors affecting food choices.
2. Understand how to select, purchase and store food safely.
3. Describe various methods of cooking and principles underlying them.

**Unit 1: Basic Concepts of Food**

**8 Lectures**

- *Unit Description:* This unit will introduce the concept of food, functions of food and factors affecting food choices.
- *Subtopics:*
  - Definition of food including organic food, genetically modified foods, convenience foods, health foods.
  - Functions of food.
  - Factors affecting food choices.

**Unit 2: Plant Based Food Groups**

**15 Lectures**

- *Unit Description:* This unit will introduce nutritional contribution, selection, changes in cooking and storage of the plant-based food groups.
- *Subtopics:*
  - Nutritional contribution, selection, changes in cooking and storage of the following:
    - Cereal and cereal products
    - Pulses
    - Vegetable and fruits
    - Sugars
    - Oils and fats

**Unit 3: Animal Based Food Groups**

**8 Lectures**

- *Unit Description:* This unit will introduce nutritional contribution, selection, changes in cooking and storage of the animal-based food groups.
- *Subtopics:*
  - Nutritional contribution, selection, changes in cooking and storage of the following:
    - Milk and milk products
    - Eggs and flesh foods

#### **Unit 4: Methods of Cooking Foods**

**14 Lectures**

- *Unit Description:* This unit will introduce advantages and principles of cooking and various cooking methods.
- *Subtopics:*
  - Advantages of cooking
  - Principles of cooking
  - Preliminary steps in food preparation
  - Cooking methods:
    - Moist heat methods
    - Dry heat methods
    - Methods using fat as a medium
    - Others – microwave, solar cooking

#### **Practical-30 Periods**

#### **Unit 1: Cooking methods I**

**16 Periods**

- *Subtopics:*
  - Cooking employing dry heat methods
  - Cooking employing moist heat methods

#### **Unit 2: Cooking methods II**

**14 Periods**

- *Subtopics:*
  - Cooking using frying as a cooking method
  - Cooking using microwave

#### **Essential Readings:**

1. Rekhi, T., & Yadav, H. (2015). *Fundamentals of Food and Nutrition*. Delhi: Elite Publishing House Pvt. Ltd.
2. Mudambi, S. R., & Rajagopal M. V. (2012). *Fundamentals of food, nutrition and diet therapy*; (6<sup>th</sup> ed.). Delhi: New Age International (P) Ltd.
3. Sethi, P., & Lakra, P. (2015). *Aahar Vigyan, Poshan Evam Suraksha*. Delhi: Elite Publishing House Pvt. Ltd.
4. Srilakshmi, B. (2018). *Food science* (7<sup>th</sup> ed.) Delhi: New Age International (P) Ltd.
5. Raina, U., & Kashyap, S. (2010). *Basic Food Preparation – a complete manual* (4<sup>th</sup> ed.). Delhi: Orient Black Swan.

**Suggested Readings:**

1. Roday, S. (2013). *Food science and nutrition*. (2<sup>nd</sup> ed.). Oxford University Press.
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**Teaching learning Process**

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**Assessment Methods**

As per University of Delhi guidelines.

**Keywords**

- Food
- Food Groups
- Food Choices
- Cooking Methods