B.A. (Prog.) with Food Technology (FT) as Non-Major
Category-III

DISCIPLINE SPECIFIC CORE COURSE – DSC-2A-FT: FOOD SCIENCE PART-II

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		
Food Science Part-II	4	3	0	1	Class XII Pass	DSC-1A-FT

LEARNING OBJECTIVES:

1. To familiarize the students with the composition and processing of milk, egg, sugars, fats and miscellaneous food.
2. To impart concept of properties of fats and oil, sugar, egg foam stages and emulsions.

LEARNING OUTCOMES:

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

1. Describe the composition and nutritive value of milk, egg, sugar and fats and their role in food processing.
2. Develop understanding about basic processing of milk and eggs.
3. Illustrate the behaviour of sugar at various temperatures.
4. Describe spoilage of fat scientifically, determine the smoke point of different fats and illustrate the ways to prevent rancidity of fats.

THEORY:

UNIT I: MILK **(9 Hours)**

- *Unit Description:* This unit is about milk, its nutritive value, processing, types and effect of processing on milk quality.
- *Subtopics:*
  - Nutritive value
  - Introduction to liquid milk technology (clarification, pasteurization, homogenization, fortification, sterilization)
  - Types of milk
  - Effect of processing on milk

UNIT II: EGGS **(12 Hours)**

- *Unit Description:* This unit is about eggs its composition and nutritive value, structure, quality, foam formation and effect of heat on egg proteins.
- *Subtopics:*
    - Composition and nutritive value
    - Structure of an egg
    - Egg quality and deterioration
    - Effect of heat on egg proteins: Green ring formation in boiled egg
    - Storage and preservation of eggs
    - Egg foams – stages of preparation and factors affecting them

UNIT III: FATS AND OILS **(12 Hours)**

- *Unit Description:* This unit is about types of fats and oils, their functions, spoilage, precautions to be taken while using, emulsions and RUCO.
- *Subtopics:*
    - Definitions, types of fats and oils and their functions
    - Rancidity in fat and its prevention
    - Care of fat used for frying (smoke, flash and fire points)
    - Emulsions
    - Repurpose used cooking oil (RUCO).

UNIT IV: MISCELLANEOUS FOOD PRODUCTS **(12 Hours)**

- *Unit Description:* This unit is about miscellaneous food items like sugar and its
properties and behaviour during cooking, tea and coffee processing and flavouring compounds in spices
- *Subtopics:*
    - Sugar: Properties, sugar behaviour during cooking.
    - Tea and Coffee: Types of tea and coffee, basic processing of tea and coffee.
    - Spices and Herbs: Types and flavouring components

PRACTICAL: 30 Hours

No. of Students per Practical Class Group: 10-15

1. Determination of pH of different foods. (2 Hours)
2. Selection and purchase criteria of raw materials (cereal, pulses, vegetables, fruits and eggs) (2 Hours)
3. Effect of heat on milk processing. (2 Hours)

4. Effect of acid and alkali on milk processing. (2 Hours)
5. Egg white foam formation (2 Hours)
6. Factors affecting egg white foam stability (4 Hours)
7. Green ring formation in boiled eggs and its prevention (2 Hours)
8. Determination of the quality of an egg (2 Hours)
9. Behaviour of sugar at various temperatures (4 Hours)
10. Preparation of crystalline candies (2 Hours)
11. Preparation of non-crystalline candies (2 Hours)
12. Determination of smoke point of different fats and oil (2 Hours)
13. Preparation of emulsions – mayonnaise (2 Hours)

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

1. Suri, S. & Malhotra, A. (2014). *Food Science Nutrition and Safety*. Delhi: Pearson India Ltd.
    a. Online Question Bank and student E Resources:https://wps.pearsoned.co.in/suri_fsns_1/
    b. Online Instructor Resources: www.pearsoned.co.in/sukhneetsuri
2. Sethi, P. &Lakra, P. (2015). *Aahar Vigyan, Poshan Evam Suraksha*. Delhi: Elite Publishing House Pvt.Ltd.
3. Srilakshmi, B. (2018). *Food Science*. Delhi: New Age International Pvt.Ltd.
4. Potter, N. & Hotchkiss, J.H. (2007). *Food Science.* 5th Edition. Delhi: CBSPublishers.
5. Rekhi,, T. & Yadav, H. (2014). *Fundamentals of Food and Nutrition.* Delhi: Elite Publishing House Pvt.Ltd.
6. Sharma, A. (2010). *Textbook of Food Science and Technology*. 2nd Edition. Delhi:IBDC Publishers

SUGGESTED READINGS:

1. Manay, N. S. &Shadakashraswamy. (2020). Foods: Facts and Principles. 3rd Edition. New Age International Pvt Ltd.
2. McWilliams, M. (2016). Foods: Experimental Perspectives. USA: Pearson.
3. Roday, S. (2018). Food Science and Nutrition. 3rd Edition. Delhi: Oxford University Press.
4. Vaclavik, V.A. & Elizabeth, C. (2014). Essentials of Food Science. 4th Edition. New York: Springer

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