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

DISCIPLINE SPECIFIC CORE COURSE – DSC-3-FT: NUTRITION AND WELL BEING FOR LIFESPAN

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		
Nutrition and Well Being for Lifespan	4	3	0	1	Class XII Pass	DSC-1-FT

LEARNING OBJECTIVES:

1. To make students understand the concept of wellbeing, good health, dietary guidelines and lifestyle management.
2. To familiarize students with the salient physiological changes and nutrition related health concerns during various stages of lifespan.
3. To familiarize students with the dietary guidelines and lifestyle practices which would support overall wellbeing and good health
4. Make students plan and prepare nutritious meals for self, family and the community.

LEARNING OUTCOMES:

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

1. Appreciate the role of dietary guidelines and lifestyle management in promoting health and well being
2. Adopt a healthy and active lifestyle suitable to each physiological stage in lifespan
3. Enhance ability to make healthy food choices for self, family and the community
4. Develop educational aids to impart nutrition knowledge.

SYLLABUS OF DSC-3-FT

THEORY:

UNIT I: Maternal and Infant Nutrition **(12 Hours)**

- *Unit Description:* This unit will focus on basic concepts of wellbeing,

dietary guidelines as well as maternal and infant nutrition.

- *Subtopics:*
    - Basic concepts: well-being, nutritional status, dietary guidelines and lifestyle management
    - Pregnancy - physiological changes during pregnancy, dietary guidelines, the role of nutrition in the developmental origins of disease
    - Lactation - factors affecting nutritional requirements, dietary guidelines, breast feeding practices
    - Infancy - growth and development, growth monitoring, dietary guidelines (advantages of mother's milk, complimentary feeding)

UNIT II: Child and Adolescent Nutrition (12 Hours)

- *Unit Description:* This unit will focus on dietary guidelines and lifestyle management of children and adolescents.
- *Subtopics:*
    - Childhood Years: growth and development, dietary guidelines during early, middle and late childhood years, common nutrition concerns.
    - Adolescence: growth and development, eating behaviour, dietary guidelines, common health problems during adolescence, eating disorders, lifestyle management.

UNIT III: Nutrition during Adulthood (12 Hours)

- *Unit Description:* This unit will focus and reference man as well as woman and nutritional needs of adults.
- *Subtopics:*
    - Reference Man and Reference Woman, dietary guidelines, role of nutrition in adulthood in the prevention and development of chronic diseases
    - Lifestyle management: healthy eating behaviour, physical activity, stress management, sleep pattern.

Unit IV: Nutrition for the Elderly (9 Hours)

- *Unit Description:* This unit will focus on nutritional needs, lifestyle management, longevity and care for elderly.
- *Subtopics:*
    - Introduction to Geriatrics, physiological changes, nutrition and longevity, nutritional concerns, dietary guidelines, Nutrition and chronic Degenerative Diseases, Nutrient-Drug Interactions (basic concept).

PRACTICAL: 30 Hours

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

1. Develop a poster/chart on dietary guidelines or lifestyle management for adults (sedentary, moderate, heavy workers) or pregnant woman. (4 Hours)
2. Develop a digital educational aid on importance of colostrum/mother's milk/food behaviour/lifestyle management (2 Hours)
3. Develop a questionnaire on common nutrition/health concerns (2 Hours)
4. Learn to fill growth chart for under five years children (case study) (2 Hours)
5. Plan and prepare nutritious snack for Pregnant women (iron and folic acid rich) (2 Hours)
6. Plan and prepare nutritious snack Lactating mother (protein and calcium rich) (2 Hours)
7. Plan and prepare nutritious snack Pre-schooler (Vitamin A rich) (2 Hours)
8. Plan and prepare nutritious tiffin for School going child (energy and protein rich) (2 Hours)
9. Plan and prepare nutritious snack for adolescents (energy and protein rich) (2 Hours)
10. Plan and prepare nutritious snack for Elderly (easy to prepare, protein and micro-nutrient rich) (2 Hours)
11. Plan and prepare premix or complimentary food for infants (2 Hours)
12. Plan and organize a health awareness activity in college for college students (exhibition of model snacks/tiffins/one dish 2meals) OR Plan and play a skit on the concept of longevity for elderly in a nearby slum or community center or college event (Group activity) (6 Hours)

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

1. Chadha, R., & Mathur, P. (Eds.). (2015). Textbook Nutrition: A Lifecycle Approach. Orient Blackswan. ISBN978-8125059301
2. Khanna, K., Gupta, S., Passi, S. J., Seth, R., Mahna, R., & Puri, S. (2013). Textbook of Nutrition and -Dietetics (2nd ed.). Elite Publishing House Pvt. Ltd. ISBN: 978-81- 88901-53-1
3. Srilakshmi, B. (2006). Dietetics. New Age International (P) Limited Publishers. ISBN 81-224-1611-X
4. Wardlaw, G. M., & Smith, A. M. (2015). Contemporary Nutrition (9th ed.). McGraw Hill Education (India) Private Limited.

SUGGESTED READINGS:

1. Evans, S. (2009). Nutrition: A Lifespan Approach, Wiley-Blackwell. ISBN:978-1-405- 17878-5.
2. Shubhangini A Joshi, S. (2021). Nutrition and Dietetics (5th ed.). McGraw Hill Education (India) Private Limited. ISBN:978-93-90727-82-7.
3. Bernstein, M. & McMahon, K. (2018). Nutrition Across Life Stages, Jones & Bartlett Publishers. ISBN: 9781284102161
4. Katz, D., Yeh, M. and Levitt, J. (2022). Wolters Kluwer Publishers. ISBN: 9781975161491

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

DISCIPLINE SPECIFIC CORE COURSE – DSC-4-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-2-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.
   i. Online Question Bank and student E Resources: https://wps.pearsoned.co.in/suri_fsns_1/
   ii. 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.