



# SRI VENKATESHWARA UNIVERSITY

## TIRUPATI

### Model Syllabus for 4-Year UG Honours in B.Sc. (Food Science and Technology) as Major in consonance with Curriculum framework w.e.f. AY 2025-26

Prepared by Vikrama Simhapuri University, Nellore

#### COURSE STRUCTURE

| Year | Semester | Course | Title of the Course                                   | No. of Hrs /Week | No. of Credits |
|------|----------|--------|-------------------------------------------------------|------------------|----------------|
| I    | I        | 1      | Introduction to Food Science and Technology           | 3                | 3              |
|      |          |        | Introduction to Food Science and Technology-Practical | 2                | 1              |
|      |          | 2      | Human Nutrition                                       | 3                | 3              |
|      |          |        | Human Nutrition-Practical                             | 2                | 1              |
|      | II       | 3      | Food Microbiology                                     | 3                | 3              |
|      |          |        | Food Microbiology-Practical                           | 2                | 1              |
|      |          | 4      | Basic principles of Food Engineering                  | 3                | 3              |
|      |          |        | Basic principles of Food Engineering-Practical        | 2                | 1              |
| II   | III      | 5      | Technology of Fats and Oils                           | 3                | 3              |
|      |          |        | Technology of Fats and Oils-Practical                 | 2                | 1              |
|      |          | 6      | Dairy Technology                                      | 3                | 3              |
|      |          |        | Dairy Technology-Practical                            | 2                | 1              |
|      |          | 7      | Confectionery Technology                              | 3                | 3              |
|      |          |        | Confectionery Technology-Practical                    | 2                | 1              |
|      | IV       | 8      | Baking Science and Technology                         | 3                | 3              |
|      |          |        | Baking Science and Technology-Practical               | 2                | 1              |
|      |          | 9      | Technology of Fruits and Vegetables                   | 3                | 3              |
|      |          |        | Technology of Fruits and Vegetables-Practical         | 2                | 1              |
|      |          | 10     | Technology of Cereals, Pulses and oil seeds           | 3                | 3              |
|      |          |        | Technology of Cereals, Pulses and oil seeds-Practical | 2                | 1              |
| III  | V        | 11     | Food Safety and Quality Control                       | 3                | 3              |
|      |          |        | Food Safety and Quality Control-Practical             | 2                | 1              |

|    |                                                         |      |                                                                   |                                                       |   |   |
|----|---------------------------------------------------------|------|-------------------------------------------------------------------|-------------------------------------------------------|---|---|
| IV | VI                                                      |      |                                                                   |                                                       |   |   |
|    |                                                         | 12 A | Technology of meat, poultry and fish products                     | 3                                                     | 3 |   |
|    |                                                         |      | Technology of meat, poultry and fish products-Practical           | 2                                                     | 1 |   |
|    |                                                         | OR   |                                                                   |                                                       |   |   |
|    |                                                         | 12 B | Post-harvest technology of horticulture crops and herbs           | 3                                                     | 3 |   |
|    |                                                         |      | Post-harvest technology of horticulture crops and herbs-Practical | 2                                                     | 1 |   |
|    |                                                         |      |                                                                   |                                                       |   |   |
|    |                                                         | 13 A | Unit operations in food industry                                  | 3                                                     | 3 |   |
|    |                                                         |      | Unit operations in food industry-Practical                        | 2                                                     | 1 |   |
|    |                                                         | OR   |                                                                   |                                                       |   |   |
|    |                                                         | 13 B | Fermentation Technology                                           | 3                                                     | 3 |   |
|    |                                                         |      | Fermentation Technology-Practical                                 | 2                                                     | 1 |   |
|    |                                                         |      |                                                                   |                                                       |   |   |
|    |                                                         | VII  | 14 A                                                              | Food Processing and Preservation Technology           | 3 | 3 |
|    |                                                         |      |                                                                   | Food Processing and Preservation Technology-Practical | 2 | 1 |
|    |                                                         |      | OR                                                                |                                                       |   |   |
|    |                                                         |      | 14 B                                                              | Food Fortification                                    | 3 | 3 |
|    | Food Fortification-Practical                            |      |                                                                   | 2                                                     | 1 |   |
|    |                                                         |      |                                                                   |                                                       |   |   |
|    | 15 A                                                    |      | Processing Technology of Beverages                                | 3                                                     | 3 |   |
|    |                                                         |      | Processing Technology of Beverages-Practical                      | 2                                                     | 1 |   |
|    | OR                                                      |      |                                                                   |                                                       |   |   |
|    | 15 B                                                    |      | Food Packaging Technology                                         | 3                                                     | 3 |   |
|    |                                                         |      | Food Packaging Technology-Practical                               | 2                                                     | 1 |   |
|    |                                                         |      |                                                                   |                                                       |   |   |
|    | 16                                                      |      | Enzymes in Food Processing Industry                               | 3                                                     | 3 |   |
|    |                                                         |      | Enzymes in Food Processing Industry-Practical                     | 2                                                     | 1 |   |
|    |                                                         |      | 17                                                                | Nutraceuticals and Functional foods                   | 3 | 3 |
|    |                                                         |      |                                                                   | Nutraceuticals and Functional foods-Practical         | 2 | 1 |
|    |                                                         |      | 18                                                                | Fundamentals of Food Chemistry                        | 3 | 3 |
|    |                                                         |      |                                                                   | Fundamentals of Food Chemistry-Practical              | 2 | 1 |
|    |                                                         |      |                                                                   |                                                       |   |   |
|    |                                                         | 19 A | Food Product development and entrepreneurship                     | 3                                                     | 3 |   |
|    | Food Product development and entrepreneurship-Practical |      | 2                                                                 | 1                                                     |   |   |
|    | OR                                                      |      |                                                                   |                                                       |   |   |

|      |                                                                      |      |                                                                 |                                                  |   |   |
|------|----------------------------------------------------------------------|------|-----------------------------------------------------------------|--------------------------------------------------|---|---|
|      |                                                                      | 19 B | Food waste management and by- product utilization               | 3                                                | 3 |   |
|      |                                                                      |      | Food waste management and by- product utilization-Practical     | 2                                                | 1 |   |
|      |                                                                      |      |                                                                 |                                                  |   |   |
|      |                                                                      | 20 A | Research Methodology and Scientific writing of papers           | 3                                                | 3 |   |
|      |                                                                      |      | Research Methodology and Scientific writing of papers-Practical | 2                                                | 1 |   |
|      |                                                                      | OR   |                                                                 |                                                  |   |   |
|      |                                                                      | 20 B | Computational biology and ICT in Food industry                  | 3                                                | 3 |   |
|      |                                                                      |      | Computational biology and ICT in Food industry-Practical        | 2                                                | 1 |   |
|      |                                                                      | VIII | 21                                                              | Food Biotechnology and nano- technology          | 3 | 3 |
|      |                                                                      |      |                                                                 | Food Biotechnology and nano-technology-Practical | 2 | 1 |
|      | 22                                                                   |      | Industrial Microbiology                                         | 3                                                | 3 |   |
|      |                                                                      |      | Industrial Microbiology-Practical                               | 2                                                | 1 |   |
|      | 23                                                                   |      | Instrumentation in Food Analysis                                | 3                                                | 3 |   |
|      |                                                                      |      | Instrumentation in Food Analysis-Practical                      | 2                                                | 1 |   |
|      |                                                                      |      |                                                                 |                                                  |   |   |
|      | 24 A                                                                 |      | Food Toxicology                                                 | 3                                                | 3 |   |
|      |                                                                      |      | Food Toxicology-Practical                                       | 2                                                | 1 |   |
|      | OR                                                                   |      |                                                                 |                                                  |   |   |
| 24 B | Basics in Immunology, Food Allergy and Food borne diseases           |      | 3                                                               | 3                                                |   |   |
|      | Basics in Immunology, Food Allergy and Food borne diseases-Practical |      | 2                                                               | 1                                                |   |   |
|      |                                                                      |      |                                                                 |                                                  |   |   |
| 25 A | Snack Food Extrusion Technology                                      |      | 3                                                               | 3                                                |   |   |
|      | Snack Food Extrusion Technology-Practical                            |      | 2                                                               | 1                                                |   |   |
| OR   |                                                                      |      |                                                                 |                                                  |   |   |
| 25 B | Technology of Spices, condiments and plantation crops                |      | 3                                                               | 3                                                |   |   |
|      | Technology of Spices, condiments and plantation crops-Practical      |      | 2                                                               | 1                                                |   |   |

**Note:** In the III Year (during the V and VI Semesters), students are required to select a pair of electives from one of the Three specified domains. For example: if set 'A' is chosen, courses 12 to 15 to be chosen as 12 A, 13 A, 14 A and 15 A. To ensure in-depth understanding and skill development in the chosen domain, students must continue with the same domain electives in both the V and VI Semesters.

## **SEMESTER - I**

### **COURSE I: INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY**

**Theory**

**Credits: 3**

**3 hrs/week**

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#### **LEARNING OBJECTIVES**

To understand the role of foods in our daily life and also to gain knowledge of different plant and animal derived foods and their nutritive values and properties

#### **LEARNING OUTCOMES**

1. To understand the sources of food and their importance at different age groups of human development
2. To learn about the nutritional benefits of plant products
3. To understand the nutritional significance of animal products
4. To gain knowledge about starch, sugars and fats and oils
5. To gain significance scope of food technology and research organizations

#### **UNIT – I**

Food as a source of nutrients: classification of nutrients and functions, recommended dietary allowances (RDA), BMR, and SDA. Balanced diet, food pyramid and food exchange list.

#### **UNIT- II**

Nutritional composition and benefits of foods based on plant origin: Cereals, millets, pectin, gums, dietic fibres, pulses, legumes, vegetables, fruits, nuts and plantation crops

#### **UNIT III**

Nutritional composition and benefits of foods based on animal origin: Milk and milk products - composition, and functional properties. Egg: composition, and functional properties. Meat and poultry: structure, muscle composition, and functional properties. Fish and marine foods: classification, composition, nutritive benefits.

#### **UNIT IV**

Starch: characteristics, gelatinization, factors affecting gelatinization. Sugars: Types of sugars and sugar syrups, Sugar cookery and applications. Fats and oils: Sources, composition, absorption, functional properties of fats and oils. Sensory evaluation – Sensory attributes and its characteristics, Requirements to conduct sensory evaluation, Sensory tests.

## **UNIT –V**

Definition and Scope of Food Technology and emerging trends in food technology. Research and standards organization of Food Science and Food Technology: Role and Function of the organizations; Nutritional research organization- ICMR-NIN, NNMB; Food Technology research organization- AFSTI, CFTRI, DFRL, NIFTEM. Food Standards- FSSAI, AMARK, FPO, MMPO.

### **References:**

1. Food Science by Helen Charley.
2. Food Facts and Principles - N. Shakuntala Manay & M. Shadakshara swamy,
3. Vijaya Khader, Text book of food science and technology, Indian council of Agricultural research New Delhi, 2001.
4. Food Science – B. Srilakshmi, New Age international (P) Limited, New Delhi.
5. Swaminathan, M. (1990). Essentials of food and nutrition, Vol. I and Vol. II. 12
6. Nutrition: An Integrated Approach- Pike & Brown;
7. Principles of Nutrition E.D Wilson, K.H.Fisher & M.C.Faqua
8. Food Science- N.Potter & J.H. Hotchkiss- CBS Publishers & Distributors, New Delhi.
9. Khatkar, B. S. (Ed.). (2007). Food Science and Technology. Daya Books.
10. Gopalan, C. (1992). Basic issues in combating malnutrition- NFI Publication.
11. Mehtab S. Bamji. (1996). Text book of human nutrition, Oxford & IBH Co.PVT.LTD, Delhi,
12. Suitor, C.W. and Hunter, M.F. (1980). Nutrition principles and application in health promotion, J.B. Lippincot Company, Philadelphia
13. Food science, Chemistry and Experimental foods by M. Swaminathan.
14. Experimental study of Foods by Griswold R.M.

## **SEMESTER - I**

### **COURSE 1: INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY**

**Practical**

**Credits: 1**

**2 hrs/week**

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- 1) Sensory evaluation of food- preparation of score card, threshold tests, sensory testing.
- 2) Standardization of weights and measures of various foods
- 3) Fats and oils – Smoke points, oil absorption and mayonnaise preparation.
- 4) Vegetable and fruit – Effect of time, temperature, media and cooking methods on pigments, Enzymatic Browning- Preventive measures.
- 5) Pulse cookery – effect of different cooking methods
- 6) Visit industries of plant and animal food product processing and preservation technology

**4- Year UG Honours, Major**  
**Syllabus**  
**(2025-26)**  
**Semester-I**

**Model Question Paper**

**Time : 3hrs**

**Marks:75**

**Part-A**

**Answer any Five Questions. Each Question carries 3 Marks.**

**5x3=15**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

**Answer the following questions. Each question carries 12 Marks**

**5x12=60**

11. a) Unit-I  
(Or)  
b) Unit-I

12. a) Unit-II  
(Or)  
b) Unit-II

13. a) Unit-III  
(Or)  
b) Unit-III

14. a) Unit-IV  
(Or)  
b) Unit-IV

15. a) Unit-V  
(Or)  
b) Unit-V