

HS-102-Fundamentals of Food & Nutrition

Course Title	Fundamentals of Food & Nutrition	Course Code	HS-102
Year	I Year	Course Group	Core
Teaching Scheme in Hrs (L:T)	4:1:0	Credits	3
Methodology	Lecture+ Assignment	Total Contact Periods	150 Periods
CIE	60 Marks	SEE	40 Marks

Pre-requisites

Basic knowledge of food groups, nutrients, health, and food preparation is the pre-requisite for studying Fundamentals of Food & Nutrition.

Course Outcomes

Upon completion of the course the student shall be able to

COURSE OUTCOME	
CO1	The Importance of Food Science, its Preparation Techniques
CO2	The Role of Beverages, Spices, Condiments, Colours and Leavening Agents
CO3	Identify the Basic Western Culinary Style of Food Preparation
CO4	Cite the Importance of Food Preservation, Adulteration and HACCP
CO5	Emphasize the three Main Classes of Macro Nutrients-Proteins, Lipids and Carbohydrates that supply energy structure and regulation.
CO6	Analyse the Importance of Vitamins, Minerals and Water

COURSE CONTENT

UNIT – I: Food Preparation Techniques

Duration: 24 Periods

Definition of Food Science aims and objectives, functions of foods, methods of cooking, effect of heat on nutrients, browning, and toxins.

UNIT – II: Beverages & Leavening Agents

Duration: 26 Periods

Beverages, classification of beverages, importance of spices, condiments, herbs, textures, masalas, wheat growing countries, types of wheat, flour, structure of wheat grain, gluten, and WAP.

UNIT – III: Basic Western Culinary

Duration: 23 Periods

Definitions of stocks, sauces, soups, garnishes, salads, dressings, and recipes. Preparation of popular soups and salads.

UNIT – IV: Food Preservation, Adulteration & HACCP

Duration: 25 Periods

Definition of food preservation, food spoilage, causes of food spoilage, methods of food preservation, types of adulterants, detection of adulterants, PFA, contamination, food infection, storage temperatures, hygiene, sanitation, CCP, CP, HACCP, and food safety standard regulation bodies.

UNIT – V: Major Macro Nutrients

Duration: 27 Periods

Definition of nutrition, nutrients, and health.

Proteins – Meaning, classification, sources, requirements, functions, and PEM.

Fats – Lipid composition, classification, fatty acids, functions of lipids, deficiency, sources, excess lipids, and requirements.

Carbohydrates – Classification, composition, functions, requirements, energy, BMR, calorific value, requirements, and sources.

UNIT – VI: Micro Nutrients & Water

Duration: 25 Periods

Meaning of vitamins, classification, functions, requirements, sources, and deficiency diseases of fat-soluble and water-soluble vitamins.

Reference books

1. *B. Srilakshmi, Food Science (4th Edition), New Age International (P) Publishers, New Delhi, 2007.*
2. *B. Srilakshmi, Dietetics (4th Edition), New Age International (P) Limited Publishers, New Delhi, 2006.*
3. *Thangam Philip, Modern Cookery for Teaching and the Trade (Volume I), Orient Longman (P) Limited, Chennai, 2005.*
4. *Premlata Mullick, Textbook of Home Science (3rd Edition), Kalyani Publishers, New Delhi, 2012.*

Suggested learning Outcomes

After completion of this course, the student should be able to

CO 1 - The Importance of Food Science and its Preparation Techniques

- 1.1 Define Food Science
- 1.2 State the aims and objective of Food Science
- 1.3 Explain the functions of foods - Physiological, Psychological and Social
- 1.4 Explain the aims and objectives of cooking food
- 1.5 Explain the methods of Cooking
- 1.6 Enlist the Natural toxins present in Foods - Browning
- 1.7 Explain the effects of heat on Nutrients

CO 2 - The Role of Beverages, Spices, Condiments, Colours and Leavening Agents

- 2.1 Define Beverages
- 2.2 Classify Beverages
- 2.3 Explain the importance of Spices and herbs
- 2.4 Explain the uses of Thickening Binding agents

- 2.5 Explain textures Indian masalas - Wet and Dry
- 2.6 Explain the types of colors and its uses
- 2.7 Explain the types of Leavening agents - Yeast, chemical, Mechanical Lamination
- 2.8 Explain the importance of Leavening agents in dough and Batter
 - 2.9 Explain the importance of wheat
 - 2.10 Identify wheat growing countries
 - 2.11 Explain the types of wheat flour
 - 2.12 Draw the Structure of Wheat Grain
 - 2.13 Explain the grades of flour
 - 2.14 Explain the WAP of flour - gluten and glutenin
 - 2.15 Role of Sugar, fat, and Salt, Butter, Eggs in Bakery

CO 3 - Identify the Basic Western Culinary Style of Food Preparation

- 3.1 Define Stocks
- 3.2 Explain the types of Stocks, its preparations, and precautions
- 3.3 Define Soup
- 3.4 Explain the Classification of Soup
- 3.5 Explain the preparation of soups and its garnishes
- 3.6 List ten popular Soups
- 3.7 Define Sauce
- 3.8 Explain the types of Sauces and Proprietary Sauces
- 3.9 Name the derivatives of Mother Sauces and their recipes
- 3.10 Define Appetizers
- 3.11 Explain the importance and the types of Salads
- 3.12 Mention popular Salads

CO 4 - Cite the Importance of Food Preservation, Adulteration and HACCP

- 4.1 Define Food Preservation
- 4.2 Explain the principles of Food Preservation
- 4.3 Define the terms Microbes & Food Spoilage.
- 4.4 Differentiate Bactericidal and Bacteriostatic, and its methods of food preservation, storage & temperatures of common Foods.
- 4.5 Differentiate the terms Food Infection, Food Poisoning, Food Contamination, Food Adulterants and Additives, and PFA act
- 4.6 Enlist the different types of Bacterial Food Infection
- 4.7 List the types of common Adulterants found in Food
 - 4.7.8 List Simple Physio chemical test for detection of Adulterants, logos of AGMARK, FPO, ISI
- 4.8 Define Hygiene, Sanitation, Refuse, Sewage and Sullage
- 4.9 Explain the importance of Personal Hygiene
- 4.10 State HACCP
- 4.11 Explain CCP and C.P
- 4.12 Enlist the types of Hazards found in Food Handling
- 4.13 Explain the Seven principles of HACCP
- 4.14 List the Food Safety and Standard 2011 of India - FSSAI, FDA, ISO for food Safety, BRC, SQF, IFS, FSSC, GMP

CO 5 - Emphasize the Three Main Classes of Macro Nutrients-Proteins, Lipids and Carbohydrates that supply energy structure and regulation.

- 5.1 Define Nutrition, and Nutrients
- 5.2 State the relationship between Health and Nutrition
- 5.3 State the meaning of Proteins
- 5.4 Explain the composition of Proteins
- 5.5 Classify the proteins - Simple, Conjugated and derived; Essential and Non-essential amino acids; Complete, partially complete and Total incomplete proteins
- 5.6 List the functions of Proteins, its requirements, sources and deficiency PEM
- 5.7 State the meaning, composition and properties of Lipids
- 5.8 Classify Lipids - Simple, compound and derived Lipids
- 5.9 State the classification of fatty acids
- 5.10 Explain the functions of Lipids its sources, requirements, deficiencies and excess of Lipids
- 5.11 State the meaning of Carbohydrates and its composition
- 5.12 Classify the carbohydrates into Mono saccharides, disaccharides, and Polysaccharides
- 5.13 Explain the function of carbohydrates its requirement and its sources
- 5.14 Define Energy, BMR
- 5.15 Explain the factors affecting CV
- 5.16 State the additional rate of Calories required for voluntary functioning of the body

CO 6 - Analyse the Importance of Vitamins, Minerals and Water

- 6.1 Explain the meaning of Vitamins. Classify Vitamins
- 6.2 Explain the functions, requirements, Sources, deficiencies of fat Soluble – A,D,E, & K
- 6.3 Explain the functions, requirements, sources, deficiencies of Water Soluble Vitamins such as Thiamine, Riboflavin, Vitamin C and Niacin
- 6.4 State the meaning of Minerals
- 6.5 Discuss the functions, requirements, sources and the effects of mineral deficiency such as Calcium, Phosphorus, Sodium and Potassium
- 6.6 Mention the composition of Water, daily requirement, and sources of water and dehydration.
- 6.7 Explain the importance of Water balance, role of Sodium, and Potassium in acid base balance of the body -cations and Anions
- 6.8 State the functions of Water

CO-PO mapping Matrix

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QUESTION PAPER PATTERN FOR MID SEMESTER EXAMS

MID-I Examination

S. No	Unit	Questions to be set for MID Exam			
		R	U	A	Remarks
1	UNIT-1	1, 2	5(a) 5(b)	7(a) 7(b)	
2	UNIT-2	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID-II Examination

S.No	Unit	Questions to be set for MID Exam			Remarks
		R	U	A	
1	UNIT-3	1, 2	5(a) 5(b)	7(a) 7(b)	
2	UNIT-4	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl No	Unit No.	Questions to be set for SEE				Remarks
1	I	1	9(a)		13(a)	
2	II					
3	III	2	10(a)		14(a)	
4	IV					
5	V	4	3	5,6	9(b),11(a), 11(b)	13(b), 15(a),15(b)
6	VI			7,8	10(b),12(a),12(b)	14(b),16(a),16(b)
Total Questions		8		8	8	
Legend:	Remembering (R)	1 Mark				
	Understanding (U)	3 Marks				
	Application(A)	5 Marks				

STATE BOARD OF TECHNICAL EDUCATION & TRAINING: TELANGANA
DIPLOMA EXAMINATIONS (C-26)
MID -I EXAMINATION
HS-102 – FUNDAMENTALS OF FOOD & NUTRITION
Model Question Paper

Duration: 1 Hour

Max. Marks: 20

PART – A

Marks: 4 × 1 = 4M

Note:

(i) Answer all four questions.

(ii) Each question carries 1 mark.

1. Define Food Science.
2. Define Cooking.
3. Define the term Herb.
4. What is the purpose of Refreshing Drink?

PART – B

Marks: 2 × 3 = 6M

Note:

(i) Answer any two questions.

(ii) Each question carries 3 marks.

5. a) Explain the Physiological Functions of Food.

(OR)

- b) Write the limitations of Cooking.

6. a) Explain the characteristics and uses of Bay Leaves.

(OR)

- b) Differentiate Refreshing and Stimulating Beverages.

PART – C

Marks: 2 × 5 = 10M

Note:

(i) Answer any two questions.

(ii) Each question carries 5 marks.

7. a) Enlist the Aims and objectives of cooking Food.

(OR)

- b) Discuss the prevention of Non –Enzymatic Browning in Foods.

- 8 a) Discuss the role and functions of Spices in Cooking.

(OR)

- b) Discuss the classification of Beverages.

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DIPLOMA EXAMINATIONS (C-26)
MID -II EXAMINATION

HS-102 – FUNDAMENTALS OF FOOD & NUTRITION

Model Question Paper

Duration: 1 Hour

Max. Marks: 20

PART – A

Marks: 4 × 1 = 4M

Note:

(i) Answer all four questions.

(ii) Each question carries 1 mark.

1. Define Stocks.
2. Define Sauce.
3. Define Food Preservation.
4. Explain the term Microbes.

PART – B

Marks: 2 × 3 = 6M

Note:

(i) Answer any two questions.

(ii) Each question carries 3 marks.

5 a) Explain the importance of Bouquet Garni.

(OR)

b) Mention the parts of a Salad.

6 a) Draw the Logo of AGMARK and FPO.

(OR)

b) Differentiate Sewage and Sullage.

PART – C

Marks: 2 × 5 = 10M

Note:

(i) Answer any two questions.

(ii) Each question carries 5 marks.

7. a) Discuss the importance and types of Salads.

(Or)

b) Discuss the classification of Soups.

8. a) Discuss the principles of Food Preservation.

(OR)

b) Enlist the types of Hazards found in Food Handling .

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DIPLOMA EXAMINATIONS (C-26)
END EXAMINATION

HS-102 – FUNDAMENTALS OF FOOD & NUTRITION
Model Question Paper

Duration: 2 Hour

Max. Marks: 40

PART – A

Marks: 8 × 1 = 8M

Instructions: Answer ALL questions.

Each question carries ONE mark.

1. Which is the largest part of the wheat grain?
2. What is a Puree?
3. Define Sauce.
4. Define Hygiene.
5. Define Nutrition.
6. Define Energy.
7. Mention deficiency disease of Iodine.
8. Mention four sources of Potassium.

PART – B

Marks: 4 × 3 = 12M

Instructions: Answer ALL FOUR questions.

Each question carries THREE marks.

- 9.(a) Explain the role of Social Function of foods..
(or)
(b) Explain the functions and effect of deficiency of Vitamin 'A'.
- 10 (a) Discuss the classification of Beverage.
(or)
(b) Explain the classification of Vitamins.
- 11 . (a) Explain the relationship between Health and Nutrition.
(or)
(b) List three sources of Vitamin Niacin.
- 12(a) State the functions of Iodine.
(or)
(b) Write the sources of Phosphorous.

PART – C

Marks: 4 × 5 = 20M

Instructions: Answer ALL FOUR questions.

Each question carries FIVE marks.

- 13(a) Discuss the Spice comprising plant parts.

(OR)

(b) Classify Protein based on Structure and nutritional value of Amino acids.

14(a) Discuss the classification of Soups.

(OR)

(b) Discuss the functions of Water and its form.

15 (a) Discuss Protein Energy Malnutrition in Indian Children.

(OR)

(b) Discuss the classification of Carbohydrates, and its functions.

16(a) Discuss the functions and deficiencies of Vitamin D.

(OR)

(b) Discuss the functions and deficiency diseases of Sodium.