

FOOD CHEMISTRY

Semester	Subject Code	Category	Lecture hours		Theory hours		Practical hours		Credits
			Per week	Per sem.	Per week	Per sem.	Per week	Per sem.	
VI	21CCH6Da	Elective-IV (Option-2)	3	45	3	45	-	-	3

COURSE OBJECTIVES:

The students will be able to

- Understand different Foods, their Nutritive values and importance of food.
- Develop skill and techniques in food preparation with conservation of nutrients and palatability using cooking methods generally employed.

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Understand the functions of food and classification of foods based on nutrients and about sugars.	K3
CO2	Learn about vegetables, fruits, cereals and cereal products.	K3
CO3	Understand about beverages, pulses and nuts.	K3
CO4	Know about food preservatives and cooking methods with reference to conservation of nutrients.	K3
CO5	Understand about food additives and packaging of foods.	K3

*CO – Course Outcomes

Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING WITH PROGRAMME OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	S	S
CO2	S	S	M	M	S	S
CO3	S	S	M	M	S	S
CO4	S	S	S	M	S	M
CO5	S	S	S	M	S	S

(S – Strong; M – Medium; L – Low)

UNIT-I: Food and Sugar**9 Hours**

- 1.1 Food: Definition, classification based on functions and food pyramid – Food groups – basic four, basic five and basic seven.
- 1.2 Sugar: Structure and Properties – Nutritive value – Sugar composition in different food items – Sugar related products – Classification and nutritive value – Artificial sweeteners – Examples – Saccharin and Cyclamate – Advantages and disadvantages.

UNIT-II: Vegetables, Fruits and Cereal products**9 Hours**

- 2.1 Vegetables and Fruits: Classification – Composition and nutritive value – Methods to minimize the loss of nutrients, color, texture, flavour and Browning reaction – Changes during cooking.
- 2.2 Cereal and cereal products: Nutritive value of Rice, Wheat and locally available millets - Effect of cooking on the nutritive value of cereals – Gelatinization, Dextrinization, and Gluten formation.

UNIT-III: Beverages, Pulses and Nuts**9 Hours**

- 3.1 Beverages: Definition - Examples – Classification – Fruit beverages – Milk based beverages – Malted beverages – Examples – Alcoholic and non-alcoholic beverages – Examples.
- 3.3 Pulses and nuts: Composition – Nutritive value of grams and dhals – Some common nuts – Meat substitutes – Soya products – Textured Vegetable Protein (TVP) – Effect of cooking on pulses.

UNIT-IV: Food Preservatives and Cooking Methods**9 Hours**

- 4.1 Food Preservatives: Definition – Classification – Food spoilage – Definition – Prevention – Methods of preservation – Classification – Low and high temperature – Preservatives – Examples – Dehydration – Food irradiation.
- 4.2 Preliminary preparation of foods prior to cooking with special reference to conservation of nutrients and palatability: Objectives of Cooking – Cooking Methods – Dry methods – frying, boiling, parching, and baking – Moist heat methods – Boiling, stewing and cooking under pressure – Microwave cooking – Advantages and disadvantages.

UNIT-V: Food Additives and Packaging of Foods**9 Hours**

- 5.1 Food Additives: Definition – Artificial sweeteners – Saccharin and Cyclamate – Classification – Their functions – Chemical substances.

5.2 Packaging of foods: Classification – Materials used for packaging – Food colours – restricted use – Spurious colours – Taste enhancers – MSG – Vinegar.

Demonstration experiments:

- Pulses – Effect of hard and soft water, alkali, cooking time of grams and dhals.
- Vegetables – Effect of acids, alkali, covering, steaming and pressure cooking on the different pigments and acceptability of vegetables.
- Fruits – Study of different methods of preventing enzymatic browning of cut fruits and pectin content of fruits.
- Different recipes from cereals, pulses, vegetables and fruits.

TEXT BOOKS:

S. No.	Authors	Title	Publishers	Year of publication
1.	B. Srilakshmi	Food Science	New Age International Publishers	2005
2.	Lilian Hoagland Meyer	Food Chemistry	CBS Publishers and Distributors	2004
3.	M. S. Swaminathan	Handbook of Food Science and Experimental Foods	Bappco, Bangalore	1992
4.	S. R. Mudambi and S. M. Rao	Food Science	Wiley Eastern Ltd, New Delhi	1986

REFERENCE BOOKS:

S. No.	Authors	Title	Publishers	Year of publication
1.	Helen Charley	Food Science	Wiley Eastern Ltd, New Delhi	1986
2.	A. G. Peckam	Foundation of Food Preparation	CBS Publishers and Distributors, New Delhi	1996

TEACHING METHODOLOGY:

- Conventional chalk and board teaching
- Power Point Presentations
- Assignments
- Animated videos
- Chalk and Board

SYLLABUS DESIGNER:

- Dr. S. Santha Lakshmi, Assistant Professor of Chemistry