

**DISTRIBUTION AND WEIGHTAGE OF COURSES IN FOOD SCIENCE & TECHNOLOGY AS A DISCIPLINE OF B. Sc. (GENERAL)
UNDER CHOICE BASED CREDIT SYSTEM SCHEME AT UNDER-GRADUATE LEVEL**

SEME	TYPE OF COURSE	TITLE OF COURSE	CREDITS		
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CORE Courses: 6 (4+2) Credits					
I	CORE (6 Credits)	Food Chemistry & Nutrition	4	0	2
II	CORE (6 Credits)	Introductory Food Microbiology	4	0	2
III	CORE (6 Credits)	Principles of Food Processing	4	0	2
IV	CORE (6 Credits).	Processing Foods of Plant Original	4	0	2
DISCIPLINE SPECIFIC ELECTIVE COURSES: 6 (4+2) Credits					
VA Or	DSE (6 Credits)	Food Quality Assurance & Packaging	4	0	2
VB		Handling & Storage of Agricultural Produce	4	0	2
VIA Or	DSE (6 Credits)	Processing of Foods of Animals Origin	4	0	2
VIB		Advances in Food Processing and Food Analysis	4	0	2

**B. Sc 1st SEMESTER
CORE**

FT120C: FOOD SCIENCE & TECHNOLOGY: FOOD CHEMISTRY AND NUTRITION

CREDITS: THEORY-4, PRACTICAL -2

THEORY (4 CREDITS): 60 HOURS

MAXIMUM MARKS: 60, MINIMUM MARKS: 24

Objectives/Expected Learning

To provide understanding of chemistry of major components of food

To provide understanding of role of macro and micro nutrients in human health

UNIT- 1 (15 HOURS)

Introduction to Food Chemistry and Nutrition

- Definitions & concepts: Food, food chemistry, nutrition, nutrients, adequate nutrition, malnutrition.
- Importance of food chemistry.
- Recommended dietary intake (RDI), Basal metabolism (BM), factors affecting RDI and BM.
- Classification of foods.
- Water in foods: Concept of water-solute interactions, Water activity and its relation with shelf-life of foods.

UNIT – 2 (15 HOURS)

Macronutrients

- Carbohydrates: Definition, chemistry, classification, sources, properties. Nutritional and industrial importance. Starch gelatinization and retrogradation. Use of polysaccharides in food industry.
- Proteins: Definition, chemistry, classification, sources, properties, chemical makeup and industrial importance.
- Non enzymatic browning reactions in foods- Caramelization and Maillard reaction.
- Fats: Definition, sources, chemistry, properties and rancidity. Significance of MUFAS and PUFAS.

UNIT- 3 (15 HOURS)

Micronutrients

- Vitamins: Importance, sources; fat soluble and water soluble vitamins.
- Effect of processing and storage on vitamins.
- Minerals: Importance and sources.
- Enzymes: Definition, sources, classification; Application in food processing, Enzymatic browning in foods and its control.

UNIT- 4 (15 HOURS)

Functional Foods and Pigments

- Functional foods: Definition & classification.
- Dietary fibre and its role in disease prevention.
- Antioxidants: Sources and role in health.
- Pigments: Myoglobin, chlorophyll, anthocyanin and carotenoids. Their sources and stability during processing.

PRACTICALS (2 CREDITS: 60 HOURS)

MAXIMUM MARKS: 30, MINIMUM MARKS: 12

- Preparation and standardization of solutions.
- Determination of moisture content.
- Determination of ash content.
- Qualitative and quantitative tests for proteins.
- Determination of crude fat.
- Qualitative and quantitative tests of carbohydrates.
- Determination of crude fibre.
- Determination of chlorophyll content.
- Determination of free fatty acid and acid value.
- Determination of peroxide value.

References

- Food Chemistry by Meyer
- Mechanism & Theory in Food Chemistry by Wong.
- Principles of Food Chemistry by John M. deMan
- Textbook and Biochemistry by A.V.S.S Rama Rao
- Food and Nutrition by M. Swaminathan
- Food: Facts and Principles by Shakuntala Manny
- Nutrition and Dietetics by Joshi
- Nutritive Value of Indian Foods by Gopalan C