

**SRI VENKATESWARA UNIVERSITY**  
**B.Sc Degree Course in FOOD SCIENCE AND TECHNOLOGY**  
**Under CBCS w.e.f – 2021-22**  
**Scheme of Instructions and Examinations.**

<b>Year</b>	<b>Semester</b>	<b>Course</b>	<b>Title of the Course</b>	<b>No. of Hrs / Week</b>	<b>No. of Credits</b>	<b>INT</b>	<b>UNI</b>	<b>Total Marks</b>
<b>1<sup>st</sup></b>	<b>II</b>	<b>II</b>	Food Chemistry	4	4	25	75	100
			Food Chemistry Practicals	2	1	0	50	50

# **SRI VENKATESWARA UNIVERSITY**

## **B.Sc. FOOD SCIENCE AND TECHNOLOGY**

### **Course Syllabus under CBCS**

*(with effect from the Academic Year 2021-22)*

#### **SEMESTER – II**

#### **PAPER-II :: FOOD CHEMISTRY**

**Teaching Hours: 4 Hours/Week**

**(Total –60 Hours)**

**Credits:4**

**Mid Sem. Exam:25Marks**

**Sem. end exam: 75Marks**

#### **UNIT – I : WATER**

- Definition, Structure of Water Molecule, Types of water, Different Types of Phases & Transitions (Liquid & Ice).
- Water in the Food- Free water, Bound water, Effect on Storage. Water activity- definition, measurement and control of water activity, estimation of moisture in foods.

#### **UNIT – II : CARBOHYDRATES**

- Introduction, Classification, General Structure, Nomenclature, Monosaccharide, Disaccharides & Oligo/Polysaccharides, Physical Properties-Hygroscopicity and Solubility.
- Chemical reactions & Derivatives - Reduction, Oxidation, Reactions in the Presence of Acids and Alkalis, Caramelization & Formation of Coloured Compounds.

#### **UNIT – III : PROTEINS & AMINO ACIDS**

**Proteins** - Definition, Composition, Classification, Structural Determination of Proteins-Primary, Secondary, Tertiary, and Quaternary Structure, Physical Properties-Optical Activity, Solubility, Gel Formation, Emulsifying Effect.

**Amino acids**-Introduction, Classification, Discovery & Occurrence, Solubility, Physical Properties - Zwitterion, Iso-Electric point.

#### **UNIT – IV : LIPIDS & FATTY ACIDS**

- Introduction, Fatty Acids, Nomenclature & Classification, Saturated Fatty Acids, Un-Saturated Fatty Acids, Substituted Fats; Physical Properties- Solubility, Crystalline Structure, Melting Point;
- Hydrogenation of Fats; Acylglycerols-Triacylglycerols, Mono- and Diacylglycerols, Occurrence & Production; Phospho- and Glycolipids; Lipoproteins.

## **UNIT – V : FOODENZYMES& NUCLEIC ACIDS**

**Food Enzymes** - Introduction, Classification& Nomenclature, General Structure, Enzyme Utilization in Food Industry. FactorsEffecting Food Enzymes, Individual Enzymes-Hydrolases, Peptidases,  $\alpha$  &  $\beta$ -amylases, Lipases, Isomerases.

**Nucleic Acids** - Introduction, Types of Nucleic Acid, Structure of Nucleic Acids – Primary, Secondary and Teritiary Structure of DNA, Types of RNA, Replication, Transcription, Translation and Genetic Code.

### **RECOMMENDED READINGS**

1. Deman JM, "Principles of Food Chemistry", AVI Publishing,1980.
2. Fennema OR," Food Chemistry", Marcel Dekker Publishers,1996.
3. Meyer LH, "Food Chemistry", Affiliated East West Press Pvt. Ltd. Bombay-1987.
4. Norman N Potter Joseph H and Hotchkirs, "Food Science", 5<sup>th</sup> edition, CBS, Publishers Distributor, NewDelhi,1996.
5. Fennema Owen R, "Principles of Food Science Part - I". "Food, Chemistry", Marcel Dekker Inc, New York,1976.
6. Ranganna S; "Handbook of Analysis and Quality Control for Fruit and Vegetable Products" 2nd Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi1986.
7. ShakuntalaManay N and Shadakshara Swamy M, "Foods, Facts and Principles", New Age International Publishers (P) Ltd., New Delhi,1987.

**(LABORATORY COURSE-II)**  
**PRACTICAL – II :: FOOD CHEMISTRY**  
*(At the End of Semester-II)*

**Teaching Hours: 2 Hours/Week**

**Credits:1**

**Mid Sem. Exam:0Marks**

**Sem. end exam: 50Marks**

1. Determination of Moisture content in foods.
2. Qualitative tests for mono, di and polysaccharides and their identification in unknown mixtures
3. Determination of P H of foods.
4. Determination of Carbonate and Bi-carbonate in WaterSamples.
5. Determination of Chloride in WaterSample
6. Identification of Amino Acids.
7. Specific gravity of fats and oils.