FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: **Bachelor of Technology (Food Processing Technology)**

Semester: **III**

Course Code: **202070302**

Course Title: **Food Chemistry**

Course Group: **Professional Core Course**

Course Objectives:

1. To impart knowledge of various aspects of food chemistry.
2. To know the chemical changes in foods during handling, processing & storage and its improvement

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
3	0	2	4	50/18	50/17	25/9	25/9	150/53

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Food Proteins:** Structure, Definition and classification of amino acids, Structure, Definition and classification of food proteins, Levels of protein structure, Protein denaturation	09
2	**Food Lipids:** Classification of lipid, Role of lipid in foods, Physical and chemical properties of lipid	8
3	**Water:** Role of water in foods, Structure of water and ice, Types of water, water activity and shelf life of food.	09
4	**Food Carbohydrate**: Classification of carbohydrates, properties of monosaccharides, disaccharide and complex carbohydrates, invert sugar, Application of carbohydrate in foods, modified starches	10
5	**Food Additives:** Functions, characteristics, selection criteria, the safety of food additives, Preservatives, Sweeteners, Leavening agents, Antioxidants, Bleachingagents, Improvers, Emulsifiers, Stabilizers & Thickeners, Colouring agents & pigments, Flavouring agents, Anticaking agents, Humectants	09
	Total	45

List of Practicals / Tutorials:

1	Determination of moisture content of different food samples by air oven method
2	Determination of moisture content by infra-red moisture balance
3	Determination of specific gravity of food sample
4	Determination of protein content in food samples by micro Kjeldahl apparatus
5	Determination of crude fat content in different oilseeds by soxhlet apparatus
6	Determination of crude fat content in different oilseeds by soxhlet apparatus
7	Determination of ash content of food sample
8	Determination of acid value of oil
9	Determination of iodine value of a given oil
10	Determination of peroxide value of a given oil sample
11	Determination of acidity and pH of fruit juice
12	Open-ended problem (OEP)

Reference Books:

1	Food chemistry Author: L.H.Meyer (CBS Publisher, Delhi)
2	Food chemistry Author: O.R. Fennema (Marcel Dekkar Inc.)
3	Foods : Facts and Principle Author: N.ShakuntalaManay and M. Sadaksharaswamy (New Age International Publisher)
4	Food chemistry Author: H.D. Belitz and W. Groech (Springer Publication)
5	Food preservation and processing Author: M. Kalia and S. Sood (Kalyani Publisher)

Supplementary learning Material:	
1	Handbook of Food Chemistry, by **Cheung**, Peter C. K., **Mehta**, Bhavbhuti M. (Springer Publication)
2	Food Chemistry, by T. Anand and Rakesh Kumar Sharma. (ND Publication).
3	Food Chemistry, Function and Analysis, by Gary Williamson. (Royal Society of Chemistry).

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Industrial/ Field visits
- Course Projects

Internal Evaluation:

The internal evaluation comprised of written exam (40% weightage) along with combination of various components such as Certification courses, Assignments, Mini Project, Simulation, Model making, Case study, Group activity, Seminar, Poster Presentation, Unit test, Quiz, Class Participation, Attendance, Achievements etc. where individual component weightage should not exceed 20%.

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
15%	40%	25%	15%	5%	0%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand the basic concepts of amino acids and proteins along with their classes and properties.	**19**
CO-2	Know different categories of lipids and their physico chemical properties	**19**
CO-3	Knowledge about importance, types and role of water in foods and understand the concept of water activity.	**20**
CO-4	Knowledge of carbohydrates, properties and role of carbohydrates in foods and knowledge of starches and modified starches for improving quality foods.	**23**
CO-5	Knowledge of food additives helps in understanding the principles whereby food molecules can be selected for use as ingredients in food formulations and the related factors that can be controlled during handling, processing and storage to enhance the product quality.	**19**

Curriculum Revision:	
Version:	2
Drafted on (Month-Year):	June-2022
Last Reviewed on (Month-Year):	
Next Review on (Month-Year):	June-2025