



FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: Bachelor of Technology (Food Processing Technology)

Semester: VIII

Course Code: 202070802

Course Title: Food Additives

Course Group: Professional Elective Course V

Course Objectives: Food Additives are used for various purposes in food industries. Students will learn properties, requirements, selection, suitability and safety of additives in the specified food formulations or processing.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				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	Introduction to Food Additives: Definition, Classification, Intentional and Non intentional food additives, Indirect Food Additives, Difference between Additives and Adulterants, Safety evaluation of food additives, FSSAI and Codex Alimentarius Commission	07
2	Food Preservatives: Class I and Class II preservatives, Antimicrobial agents like KMS, Sorbic acid/Sorbates, Benzoic acid, Propionic acid/Propionates, Nisin in food processing	10
3	Antioxidants & chelating agents: Introduction; Role in foods; Types of antioxidants -natural & synthetic; Mode of action of antioxidants in foods Chelating agents- Naturally & synthetic; Mode of action of chelating agents; Applications of Emulsifying and Stabilizing agents, Anticaking agents, Thickeners, Firming agents, Flour Bleaching agents and Bread improvers	08
4	Low calorie and non nutritive sweeteners: Properties and applications of Sucralose, Saccharin, Aspartame, Inulin, Fructo-oligosaccharide, Levulose.	05



5	Food Colors and Pigments: Natural, Nature Identical and Artificial food colors, Anthocyanin, Betalains, Annatto, Chlorophyll, Carotenoids, Caramel.	07
6	Food Flavours: Molecular structure and activity relationships of taste – Sweet, bitter, acid and salt, Chemicals causing pungency, astringency, cooling effect, Types of flavours	08
	Total	45

List of Practicals / Tutorials:

1	Determination of salt content by Mohr's method
2	Estimation of sodium benzoate in food sample
3	Detection of natural food colour
4	Determination of chlorophyll content
5	Determination of carotenoid content
6	Effect of different levels of food preservatives in food product
7	Effect of pigments addition in food product
8	Determination of moisture content by using Karl fisher titration Method
9	Detection & estimation of synthetic food colors from food product
10	Estimation of caffeine content in coffee sample

Reference Books:

1	Food Additives by A. Larry Branen et al. Publisher CRC Press
2	Natural Food Additives, Ingredients and Flavourings by D. Baines and R. Seal Publisher Woodhead Publishing
3	Food Additives Databook by J. Smith and L. Hong-Shum Publisher Willey Blackwell
4	Food Chemistry by Fenema Publisher CRC Press
5	Food Chemistry by Meyer L.M. Publisher Reinhold Publishing

Supplementary learning Material:

1	https://www.who.int > Newsroom > Fact sheets > Detail
2	https://www.fda.gov/food/food-ingredients-packaging/overview-food-ingredients-additives-colors/
3	https://medlineplus.gov/ency/article/002435.htm
4	https://www.britannica.com/topic/food-additive
5	https://www.sciencedirect.com/topics/medicine-and-dentistry/food-additive

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	
30%	40%	10%	10%	10%	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 various classes of food additives and its safety in processed food products	25
CO-2	Understand food preservatives, antioxidants and chelating agents properties, mode of action and application in food products.	30
CO-3	Understand low calorie non nutritive & nutritive sweeteners and food colors properties and applications in food products	25
CO-4	Understand food flavours properties and usage in food products	20

Curriculum Revision:

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