



FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: Bachelor of Technology (Food Processing Technology)

Semester: III

Course Code: 202070304

Course Title: Introduction to Food Processing Technology

Course Group: Professional Core Course

Course Objectives: To acquaint the student with fundamental knowledge of food processing and preservations. The students will also get exposed to fundamentals of energy balance, mass balance, basic unit operations in food processing as well as present status of food industries in India.

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	2	0	4	50/18	50/17	25/9	25/9	150/53

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

Detailed Syllabus:

Sr.	Contents	Hours
1	Engineering units and Dimensions: Base units, Derived units and Supplementary units	03
2	Indian Food Industry: Present status, opportunities and challenges, sectors of Indian food industry, government initiatives for growth of food industry.	07
3	Fundamentals of Mass and Energy balance: Application of mass and energy balances in food engineering operations.	09
4	Units Operations: Equipment and Machinery deployed in food processing Industry, Cleaning, Grading, Peeling, Cutting Balancing, Pulping, Size reduction, Separation and Drying	08
5	Food Deterioration, Preservation and Processing: Basic concepts, factors affecting the food deterioration and different preservation techniques.	10
6	Food Standards and Quality Evaluation: Regulatory aspects of food marketing, need for evaluation , methods of food evaluation	03



7	Steam Tables, Psychometric Chart: Basic methods and applications	04
	Total	45

List of Practicals / Tutorials:

1	Units and Dimension.
2	Learning of components of scientific research papers
3	Mass Balance Problems Part I
4	Mass Balance Problems Part II
5	Major mode of deterioration in perishables
6	Energy Balance Problems Part I
7	Energy Balance Problems Part II
8	Use of Steam Table Part I
9	Use of Steam Table Part II
10	Use of Psychrometric chart

Reference Books:

1	Introduction to food engineering by Singh, R. P., & Heldman, D. R. (2001), Gulf Professional Publishing.
2	Fundamentals of food process engineering by Toledo, R. T., Singh, R. K., & Kong, F. (2007), (Vol. 297), Springer
3	Food engineering operations by Brennan, J. G., Butters, J. R., Cowell, N. D., & Lilly, A. E. V. (1976). (No. Ed. 2). Applied Science Publishers Ltd.
4	Food processing technology: principles and practice by Fellows, P. J. (2009), Elsevier.
5	Food science by Potter, N. N., & Hotchkiss, J. H. (2012), Springer Science & Business Media.
6	Essentials of food science by Vaclavik, V. A., Christian, E. W., & Christian, E. W. (2008), (Vol. 42), Springer.
7	Food processing: principles and applications by Smith, J. S., & Hui, Y. H. (Eds.). (2008), John Wiley & Sons.
8	Food processing: principles and applications by Ramaswamy, H. S., & Marcotte, M. (2005). CRC Press.

Supplementary learning Material:

1	http://foodscience.uark.edu/
2	http://www.ucc.ie/en/ace-dfsct/
3	http://www.sciencedirect.com/science/book/
4	http://ciftinnovation.org/food-processing
5	Farkas, B.E. and Farkas D.F. (1997). Material and Energy Balances. In: Rotstein E., Singh R.P., Valentas, K.J. (Eds.), <i>Handbook of Food Engineering Practices</i> . CRC Press, Boca Raton, Florida, USA.

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	
10%	40%	20%	10%	20%	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	Get acquainted with the status and scope of Indian food industry	20
CO-2	Understand the basic engineering principles involved in processing of food	15
CO-3	Know the basic principles of food spoilage and the methods of food preservation	25
CO-4	Get aware about the mass and energy balances in various food processing operations	15
CO-5	To get a preliminary idea about the basic unit operations in food processing	15
CO-5	To acquaint about the methods of food evaluation and regulatory bodies for food business	10

Curriculum Revision:

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