



FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: Bachelor of Technology (Food Processing Technology)

Semester: VII

Course Code: 202070701

Course Title: Food Rheology and Sensory Evaluation

Course Group: Professional Core Course

Course Objectives: Food being bio material its property changes with time and quality deteriorate at different rate in the different environment. The study of this will help for maintain the quality for longer period and acceptable to the consumer. The course will enable the learner to design, conduct and analyze sensory evaluation of food products.

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	Basic rheological concept: Stress-strain curve for food material, Classification of rheological behavior, Newtonian and Non-Newtonian fluids, Viscoelastic behavior, Rheological Models like Maxwell, Kelvin, Burger Model, Dynamic rheology tests	08
2	Color: Color & Light, Color Measuring equipments spectrophotometer, Colorimeters, CIE (XYZ and L*,a*,b*) color system, Hunter Lab color space	07
3	Applied Rheology: Textural attributes of fruits and vegetables, Rheology of bread, Rheology of pasta, Rheology of meat products, Rheology of Chocolate	07
4	Sensory Evaluation: Basic concept, Application of sensory evaluation in food industry, Sensory evaluation laboratory layout design and infrastructure requirement, Panel member requirement and selection, Factors affecting sensory verdict, Sensitivity test, Discrimination test, Qualitative and Quantitative test, Consumer Test, Score card development	12



5	Food texture: Basic concept, Principles of determining food texture, Texture Profile analysis, Texture measuring instrument: Working Principle and operation of sucrometer, Fibrometer, Fruit Pressure Tester, Haugh Meter, Adams consistometer, Bostwick consistometer	07
6	Food Emulsion: Classification of emulsion, Internal Phase Ratio, HLB Index, Food Emulsion stabilization mechanisms, Food Emulsion destabilization mechanisms	04
	Total	45

List of Practicals / Tutorials:

1	Introduction to Sensory Evaluation
2	Determination of threshold value for sweet taste attribute of an individual and comparison of market samples for sweetness level
3	Determination of threshold value for salt taste attribute of an individual and comparison of market samples for saltiness level
4	Determination of threshold value for sour taste attribute of an individual and comparison of market samples for sourness level
5	Sensory Evaluation of food products by using Hedonic Rating test
6	Effect of fat type on cookie dough rheology
7	Designing of Consumer test questionnaire
8	Determination of viscosity of oil by red wood viscometer
9	Study of textural attributes of food products
10	Texture analysis of fruit using Loyed texture analyzer

Reference Books:

1	Advances in rheology and Its Food Applications by J. Ahmed, P. Ptaszek, S. Basu. Publisher Woodhead Publishing
2	Rheological Methods in Food Process Engineering by James F. Steffe, Publisher Freeman Press USA
3	Food Texture and Viscosity: Concept and Measurement 2 nd Edition by Bourne M.C. Publisher Elsevier Science
4	Sensory evaluation Techniques by Meilgard M, Civile GV and Carr BT CRC Press Inc
5	Sensory evaluation of Food by Piggot JR Elsevier Applied science

Supplementary learning Material:

1	http://www.jnkvv.org/PDF/0906202014541396201211.pdf
2	https://nptel.ac.in/courses/126105011
3	Food Rheology by Qixin Zhong Christopher R. Daubert in Handbook of Farm, Dairy and Food Machinery Engineering (Second Edition). https://doi.org/10.1016/B978-0-12-385881-8.00015-X
4	Food Rheology: Scientific Development and Importance to Food Industry by Ahmed J.,Ptaszek P., Basu S. In Advances in Food Rheology and Its Applications. Woodhead Publishing Series in Food Science, Technology and Nutrition.
5	Rheological Properties of Food Materials by B.De Cindio, N.Baldino, D.Gabriele, F.R.Lupi In Encyclopedia of Food and Health



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	
20%	35%	10%	20%	15%	00	

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	Understanding of various rheological concepts & instruments and use to ascertain reproducible quality of the product	30
CO-2	Understand the effect of processing parameters on rheological properties and quality of the food	35
CO-3	Able to design and conduct sensory evaluation study of food products	35

Curriculum Revision:

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