# GUJARAT TECHNOLOGICAL UNIVERSITY

**Branch Name: Food Processing & Technology (14)**
**Subject Name: Food Rheology and Sensory Evaluation**
**Subject Code: 2171402**
**BE Semester: 07**

**1) Type of Course**                Food Processing Technology

**2) Prerequisite**                Nil

**3) Rational:** Food being bio material its property changes with time and quality deteriorate at different pace in the different environment. The study of this will help for maintain the quality for longer period and acceptable to the mass.

**4) Teaching Scheme & Examination Scheme**

| Subject Code | Subject Name | Teaching Scheme(Hours) | | | | Theory Marks | | | | | Tutorial Work/Practical Marks | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ESE(E) | PA (M) | | | | Viva (V) | | | PA(I) | | | |
| | | Theory | Tutorial | Practical | Credits | Passing Criteria | Other PA | ALA | Passing Criteria | Viva | OEP | Passing Criteria | Other PA | CS | Passing Criteria | |
| 2171402 | Food Rheology and Sensory Evaluation | 4 | 0 | 2 | 6 | 70  23/70 | 20 | 10 | 12/30 | 20 | 10 | 15/30 | 20 | 0 | 10/20 | 150 |

        **ESE = End Semester Examination**

        **PA = Progressive Assessment**

        **ALA = Active Learning Assisgnments**

        **OEP = Open Ended Problems**
        **CS = Case Studies**

**5) Learning Objectives**

1. To understand the effect of environment on physical and rheological properties of the food material.
2. To understand the science behind the processing and develop technology of exiting product with modern gadgets.
3. To get familiar of various rheological instruments and use to ascertain reproducible quality of the product and compare with the sensory acceptance.
4. To develop new products based on the knowledge they get.

**6) Open Ended Problems**

1. To study the rheological characteristics of food products during manufacturing and storage period
2. To select appropriate sensory evaluation method and design the sensory study of food products

**7) Content**

| TOPIC | SUB TOPIC | LECTURES | Module Weightage (%) |
|---|---|---|---|
| **Introduction** | Mechanical properties of foods, Mechanical models to visualize behavior of foods, basic and rheological considerations and their applications to foods | **04** | **12** |
| **Sensory Characteristics** | Color and Appearance, Texture and mouthfeel, Aroma and overall taste | **06** | **19** |
| **Sensory Evaluation** | Basic concept, Application of sensory evaluation in food industry, Sensory evaluation laboratory designing and infrastructure | **13** | **20** |

| methods | requirement, Panel member requirement and selection, Factors affecting sensory verdict, Sensitivity test, Discrimination test, Qualitative and Quantitative test, Consumer Test, Score card development | | |
|---|---|---|---|
| **Food Texture** | Food texture – basic concept, Principles of determining food texture, Texture measurement instrument | **3** | **12** |
| **Rheological Attributes** | Textural attributes of fruits and vegetables, Textural attributes of pasta and baked products, Textural properties of meat and their instrumental measurement | **05** | **15** |
| **Rheology of chocolate** | Basic concept of Newtonian and non Newtonian fluids, Casson body – chocolate application, Factors affecting chocolate manufacturing | **03** | **11** |
| **Food Emulsions** | Basic concept, Textural characteristics of food emulsion, Functions of emulsifier in relation to food texture | **02** | **11** |

## 8) Reference Books
1. Rheology and Texture in Food Quality by Deman J M AVI publishing co.
2. Physical Properties of Plant and Animal Product by Mohsenin NN, Gordon and Beach Sciences Publisher
3. Sensory Properties of Food by Birch GC, breman JG and parker KJ, allied Publisher
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
6. Guidelines for sensory analysis in food Product development and quality Control by carpenter R, Lyon DH and Hasdell TA ASPEN publishing

## 9) Course Outcome
At the end of this module, the student will be able to:

1. Understand the effect of processing parameters on rheological properties and quality of the food
2. Develop process technology for the newer products
3. Able to conduct and design sensory evaluation study of food products

## 10) List of Practicals
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. Development of sensory score card
7. Effect of fat type on cookie dough rheology
8. Designing of Consumer test questionnaire
9. Determination of viscosity of oil by red wood viscometer
10. Study of textural attributes of food products
11. Texture analysis of fruit using Lloyed texture analyzer

## 11) Major Equipments
1. Texture Analyzer
2. Red Wood viscometer

## 12) List of Open Source Software/learning website
i) www.unaab.edu.ng
ii) www.onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2621
iii) www.journals.elsevier.com/lwt-food-science-and.../open-access-articles/