GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Subject Code: BV01009051

Subject Name: Food Chemistry Lab

w. e. f. Academic Year:	2024-25
Semester:	1
Category of the Course:	Core Course

Prerequisite:	NA
Rationale:	This practical course on Food Chemistry provides students with hands-on experience in analyzing fundamental components of food, including moisture, protein, fat, and ash content. Through practical applications and experiments, students gain a deeper understanding of food composition and the role of various chemical properties in food quality and shelf life. These skills are essential for careers in food science, where precise analytical techniques are crucial for ensuring food quality, safety, and compliance with industry standards.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Knowledge about the moisture and water activity and understand the basic concept of Shelf life of foods.
02	Study of carbohydrates to understand the properties and role of carbohydrates in foods.
03	Knowledge of structure of fatty acids, their physical and chemical properties.
04	Study of properties of food protein, structure and understand the functional role of protein in foods.

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
-	-	2	1	-	-	20	30	50

Course Content:

Pra. No.	Content	No. of Hours	% of Weightage
1.	Preparation of standard solutions	4	14
2.	Determination of moisture content of different food samples by air oven method	4	14
3.	Determination of moisture content by infra-red moisture balance.	4	14
4.	Determination of protein content in food samples by micro kjeldahl apparatus	6	16
5.	Determination of crude fat content in different oilseeds by soxhlet apparatus	4	14
6.	Determination of ash content of food sample	4	14
7.	Determination of iodine value of a given oil	4	14
	Total	**30**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
20	20	15	15	15	15

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

Open-source software and website:

1. **Open Food Facts -** https://world.openfoodfacts.org/
   A free database of food products that includes nutritional information, making it useful for comparing real-world data with lab results.

2. **USDA FoodData Central** - https://fdc.nal.usda.gov/
   Provides comprehensive data on food nutrients and composition, useful for referencing values during chemical analysis.

3. **ChemCollective** - http://chemcollective.org/
   Offers virtual labs and interactive tutorials in chemistry, which can help in visualizing chemical concepts relevant to food chemistry.

4. **LibreOffice Calc** - https://www.libreoffice.org/
   An open-source spreadsheet tool for data analysis, useful for recording experimental data and performing basic calculations.

5. **PubChem** - https://pubchem.ncbi.nlm.nih.gov/
   A free resource for chemical information, ideal for looking up detailed information on food components and additives.

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