GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Subject Code: BV04009041

Subject Name: Food Analytical Techniques

w. e. f. Academic Year:	2025-26
Semester:	04
Category of the Course:	Core Course

Prerequisite:	Basic knowledge of food analytical techniques
Rationale:	The goal of the course is to help students develop a scientific approach to food analysis. The course gives students a clear understanding of the fundamentals and practical applications of a variety of tools that are frequently used in food research labs and the food industry to describe the physical, chemical, and structural characteristics of food ingredients.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Students will understand the analysis methods and samples
02	Understand the AOAC, AACC, AOCS and National Standards Authority
03	Analyze different analytical techniques for moisture content, Ash content and protein content.
04	Learners will understand principles and working operations of various instruments.

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)	
3	0	0	3	50	0	0	0	50

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**Concepts of food analysis** Rules and regulations of food analysis, Introduction to AOAC, AACC, AOCS, National Standards Authority	06	12
2.	**Analysis methods and Sample Preparation** Selection of analysis methods and samples, Steps in analysis, Selection of sampling procedures, Problems in Sampling, Sample preparation	09	18
3.	**Methods of analysis of food** Moisture analytical techniques, Ash Analysis, Fat Analysis, Protein Analysis, Carbohydrate Analysis.	10	24
4.	**Principles involved in analytical techniques**: pH meter, Electrophoresis unit, spectroscopy, ultraviolet visible, infrared spectroscopy, FTIR Spectroscopy	10	22
5.	**Chromatography Techniques:** Introduction to Chromatography: Principle of chromatography, classifications, Paper Chromatography, Thin layer chromatography, Gas Chromatography	11	24
	Total	**45**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
25	**25**	**0**	**0**	**0**	**0**

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

References/Suggested Learning Resources:

(a) Books:

1. Wilson, R.H. (Ed). 1994. Spectroscopic techniques for food analysis. New York: VCH Publishers, Inc.
2. R.P.Braun 2014. Introduction to Instrumental Analysis. PharmaMed Press A Unit of BSP Books Pvt. Ltd. Hyderabad
3. S. Suzanne Neilsen. Food Analysis 4th Edition. Springer New York
4. Principles of Instrumental Analysis 7th Edition by Douglas A. Skoog (Author), F. James Holler (Author), Stanley R. Crouch (Author). Cengage Learning
5. Winton A.L. & Winton K.B. Techniques of Food Analysis. Agrobios Publications

(b) Open-source software and website:

1. http://foodscience.uark.edu/
2. http://fssai.gov.in/manuals
3. http://fao.org/fao-who-codexalimentarius

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