

Semester IV

Food Analysis

Objectives:

This course will enable the students to:

1. Acquire basic skills to do laboratory work.
2. Know general principles involved in instrumental method.
3. Understand the principles involved in the estimations.
4. Analyze different food components or constituents.
5. Use simple tests to detect food adulterants from commonly consumed foods.
6. Be familiar with the qualitative standards and specifications laid down by Food Safety and Food Standards Authority of India.

	Subject	Total Credits	Th	Pr	Int	Ext	Total
	Food Analysis	4	-	4	25	75	100

Module No	Objectives	Content	Assessment
1	<p>This module will enable students to:</p> <ol style="list-style-type: none">1. Understand the significance of food analysis.2. Learn about sampling, and the techniques used in sampling.3. Have knowledge about various instruments used in food analysis.	<p>Introduction to food analysis and its importance.</p> <p>Sampling Definition of sampling Sampling methods/ techniques. Sampling Techniques in food analysis General classification of sampling methods. Advantages and disadvantages of Sampling Best sampling technique for particular foods</p> <p>General instrumental methods - Working principles and uses of various laboratory instruments used in food analysis- Colorimeter, Spectrophotometer, centrifuge, Kjeldahl's apparatus for protein estimation, Soxhlet apparatus for fat estimation, different balances, Muffle furnace, water bath, glass distillery unit.</p>	<p>25 Marks</p> <p>Quiz Journal Assignments on working principles of various instruments</p> <p>Performing practical Viva</p>

<p>2</p>	<p>This module will enable students to:</p> <ol style="list-style-type: none"> 1. Know analytical methods used in estimation of proximate principles. 2. Determine the chemical constants of fats and oils and understand the significance. 3. Know the food standards laid down by FSSAI. 	<p>Quantitative Analysis of proximate principles:</p> <ul style="list-style-type: none"> - Estimation of moisture by AOAC method. - Estimation of crude fat/oil by solvent extraction method. (Demonstration only) - Estimation of total ash by A.O.A.C. method of ashing. - Estimation of protein by Macrokjeldahl method. (Demonstration only) <p>Chemical constants of fats and oils.</p> <ul style="list-style-type: none"> - Determination of Acid value. - Determination of Saponification value. - Determination of Iodine value. 	<p>25 Marks Quiz Journal Assignments</p> <p>Performing practical Viva</p>
<p>3</p>	<p>This module will enable students to:</p> <p>Learn analytical methods used in estimation of various food components.</p>	<p>Estimation of Food Components</p> <ul style="list-style-type: none"> - Estimation of total and free sugar from honey by Benedict's/ Lane and Eynon's quantitative reagent method. - Determination of Ascorbic acid (Vit.C) from food sources by 2, 6, dichlorophenol indophenol method. - Estimation of sodium chloride (NaCl) salt from butter by Mohr's titrimetric method. - Estimation of calcium by titrimetric method (Clerk & Collips). - Estimation of phosphorus by Fiske and Subbarao's or Vandate-Molybdate colorimetric method. - Estimation of Iron by dipyridyl reagent method. - Estimation of Acidity in milk by titrimetric method. 	<p>25 Marks Quiz Journal Assignments</p> <p>Performing practical Viva</p>
<p>4</p>	<p>This module will enable students to:</p> <p>Gain knowledge about food adulterants and know methods of detection.</p>	<p>Qualitative analysis of common food adulterants.</p> <p>Fats and oils Spices and condiments Milk and milk products Cereals and pulses Honey and Jaggery</p>	<p>25 Marks Quiz Journal Assignments</p> <p>Performing practical</p>

		Tea and coffee Sweets and confectionary	Viva
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References

1. Harold Egan, Ronald S. Kirk, Ronald Sawyer, David Pearson (1981) "Pearson's Chemical Analysis of Foods. 8th Edition, Churchill Livingstone.
2. C. Gopalan, B V Rama Sastri, S C Balasubramanian "Nutritive Value of Indian Foods." 6th Edition, 1996, Reprinted 2011. National Institute of Nutrition, Hyderabad.
3. "Official Methods of Analysis, of AOAC INTERNATIONAL", 18th Edition, 2005, AOAC INTERNATIONAL.
4. N. Raghuramulu, K. Madhavan, S. Kalyanasundaram (2003) "A Manual of Laboratory Techniques", 2nd Edition, National Institute of Nutrition.
5. A. Y. Sathe, (1999) "A first course in Food Analysis" 1st Edition New Age International (P) Limited.
6. Manual of Methods of Analysis of Foods. Directorate General of Health Services, Ministry of Health and Family Welfare Government of India, 2005.
7. Morris Boris Jacobs (1951) "The Chemical Analysis of Foods and Food Products". 2nd Edition, 1951. D. Van Nostrand Company, .