



DEPARTMENT OF CHEMISTRY
UNIVERSITY OF LUCKNOW
Four Year Undergraduate Course Structure:
Subject: Chemistry Semester II NEP (Revised)
For students admitted in session 2024-25 onwards

Food Chemistry (Chemistry Vocational 1)

Semester II

VC 1

Credits 2

MM 100 (75 + 25)

Course outcome

Students admitted in B.Sc. Chemistry semester program will gain precise insight into the:

- CO-1- Chemistry of water and its significance in foods
- CO-2- Role of each component of food such as carbohydrates, proteins, fats, vitamins and minerals and their interaction.
- CO-3- Functional aspects of various food components and to study their role in food processing.
- CO-4- Enzyme activity in different food systems and their functional importance in preparation of food additives.

Unit 1

- **General**
 - Water molecule, hydrogen bonding, different types of water, physical properties of water, water activity and its role in food processing and storage, industrial and nutritional significance of water.

Unit 2

- **Carbohydrates and Proteins:**
 - Role of carbohydrates in food industry (sugars starch, cellulose, glucans, hemicellulose). Proteins: Major protein systems, Food proteins derived from milk, egg proteins, meat proteins, fish muscle proteins, oil seed proteins and cereal proteins.

Unit 3

- **Lipids:**
 - Vegetables and animal fats, butter and their use in food processing. Lipid oxidation, factors affecting lipid oxidation, autooxidation and biological significance.

Unit 4

- **Enzymes:**
 - Enzyme definition, characteristics, classifications. Role of Amylase, Protease, Lipase, Pectinase, and Rennet in food processing. Role of enzymes in Baking, Cheese making, fruit juice preparation, and in meat tenderization.



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References Books

1. Principles of Food Chemistry by John deMan, Springer.
2. Food chemistry by H.K Chopra P.S Panesar, Alpha Science International Ltd.
3. Food chemistry by Owen R. Fennema, CRC Publications.
4. Food Chemistry by Lillian Hoagland Meyer, Reinhold Publishing Corporation.
5. Food theory and application second edition by Jane Bower, Pearson
6. Spices and Seasonings: A Food Technology Handbook, by Donna R. Tainter, Antony T.Grenis, Wiley
7. Handbook of Herbs and Spices: Volume 3 edited by K.V. Peter Woodhead Publishing