



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering (Food Processing Technology)

Subject Code: 3141408

Management of Nutrition & Health

4th SEMESTER

Type of course: Food Processing Technology

Prerequisite: Nil

Rationale: Nutrition is the study of food and its relation to health. The course enables the making of informed choices regarding food consumption and physical activity patterns that contribute to optimal health, and prevention of diseases. The course will cover topics like functions of various nutrients and non nutrients like Carbohydrates, Protein, Lipids, Vitamins, Minerals, Dietary Fiber, and Water. This course highlights on digestion, absorption and utilization of nutrients in human being. It also enlightens students on effect of heat processing on nutrients and causes of nutrient destruction. The knowledge can be utilized as a basis to design food product and menu planning effectively.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Course Curriculum

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	Food & Nutrition: Introduction to the course, Definitions of nutrient, nutrition, food, Factors affecting human nutrition, Functions of food, Classification of food, Food Groups, Food guide pyramid, Nutrient wheel Definitions, functions, deficiency symptoms and excessive consumption consequences of macronutrients, water, dietary fiber	9	20
2	Management of Nutrients: RDA for individuals, Balance diets management for infants, children, adults, Basal metabolism rate and factors affecting	3	9
3	Vitamins and Minerals: Introduction, Classification of vitamins, major source, functions and deficiency symptoms, requirement	8	20
4	Digestion and Absorption of Food in Human System: Digestion and Absorption of protein, carbohydrate, lipids Factor affecting on digestion and absorption,	6	16
5	Management of nutrient during processing: Effect of heat processing on carbohydrate, protein and fat, Addition of nutrients like fortification, supplementation, enrichment, restoration	3	9
6	Enzymes: Introduction, Structure & characteristics, Specificities, Catalysis & regulation, Nomenclature & classification, Co-factors, mechanism of enzyme action, Factors affecting enzyme catalysed reactions, Enzyme competitive and uncompetitive	4	12
7	Metabolism: Anabolism and Catabolism of carbohydrate, protein and lipid with major metabolic pathways, Role of hormone in metabolism	5	14



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Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
30%	30%	15%	15%	10%

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Advanced Text Book on Food and Nutrition Vol. 1 by M. Swaminathan (The Bangalore Printing and Publishing Co. Ltd., Bangalore)
2. Food Nutrition and Dietetics 2nd Edn. by Shubhangini Joshi (Tata McGraw Hill Education Pvt. Ltd., New Delhi)
3. Food Chemistry by L H Meyor (CBS Publisher, Delhi)

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Evaluate the dietary sources, roles and functions of key nutrients	20
CO-2	Explain the role that diet and other life style practices play in the management and prevention of diseases / disorders	20
CO-3	Explain the digestion, absorption and metabolism of nutrients in managing human health	25
CO-4	Formulate food product on the nutritional requirement and energy requirements based on recommendations of Recommended Dietary Allowances (RDA) for different age groups and physiological life stage	20
CO-5	Explain the role of enzymes in food processing	15

List of Practicals:

1. Calculation of calorific value of food products
2. Preparation of various Buffer solution of specified pH and ionic concentration and verify the pH with pH meter
3. Determination of ascorbic acid content of food by DCPIP method
4. Study of enzymatic browning reactions and factors controlling
5. To determine colorific need and Body Mass Index of individual
6. Study of balanced diet
7. Qualitative test for carbohydrates
8. Determination of reducing sugar by DNSA method
9. To study the effect of substrate concentration on enzymatic reaction
10. To study the effect of temperature on enzymatic reaction

List of Open Source Software/learning website:

- a. www.who.int/healthinfo
- b. www.fao.org/publications
- c. www.unicef.org/publications