GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF ENGINEERING SYLLABUS

Subject Code : 3145101

Subject Name : Food Biochemistry & Nutrition

WEF Academic Year :	2022-23
Semester :	4
Category of the Course :	Humanities & Social Science

Course Scheme :

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

Course Content :

Sr. No.	Course Content	No. of Hours
1	**Enzymes** Enzymes nomenclature and classification, factors effecting enzyme activity, mechanism of enzyme action, enzyme applications	6
2	**Metabolism of carbohydrates** Digestion and absorption, major pathways of carbohydrates metabolism (glycolysis, gluconeogenesis, Kreb's cycle, glycogenesis, glycogenolysis),	8
3	**Metabolism of lipids** Digestion and absorption, β-oxidation of fatty acids, Biosynthesis of fatty acids and triacylglycerol.	8
4	**Metabolism of Proteins** Digestion and absorption, amino acid pool, nitrogen balance, metabolism of amino acids (general aspects, deamination, transamination),	8
5	**Food Nutrition** Functions and energy values of foods, basal energy metabolism: BV, NPU, BMR, PER calculations, dietary allowances and standards for different age groups, nutritive value of Indian food, techniques for assessment of human nutritional status, balance diet Causes and preventions of malnutrition.	8

Reference Book :

1. Biochemistry, A.V.V.S Ramarao
2. Principles of Biochemistry, Lahhanger
3. Biochemistry, Mohinder Singh
4. Food and Nutrition Vol. I & II, M. S. Swaminathan
5. Biochemistry IIIrd Edition, U. Satyanarayana & U. Charkrapany

Course Outcome :

After Completion of the Course, Student will able to :

No.	Course Outcomes
01	Demonstrate the role of enzymes and their importance in food biochemical processing and food digestion.
02	Describe about the chemical/biochemical properties and metabolic pathways of carbohydrates, lipids, and proteins.
03	Familiarize/interprets various aspects of food nutritional requirements for health sustainability and concept of balance diet
04	Elaborate/apply about the techniques used to calculate protein quality, dietary allowances of different people and techniques of nutritional assessment

Suggested Course Practical List :

1. Estimation of enzymatic activity of given enzyme.
2. To study the production of ethanol by given organism.
3. Estimation of total sugars and reducing sugars in a given food sample.
4. Estimation of ascorbic acid in a given food sample.
5. Estimation of protein by Lowry method.
6. Estimation of phosphatase activity in a milk sample.
7. Estimation of nutritive value of given food sample.
8. Estimation of calorific value by Bomb calorimeter.
9. To determine Biochemical Oxygen Demand of a given sample.
10. To determine Chemical Oxygen Demand of a given sample.

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