LECTURE SCHEDULE

Department: Dairy Chemistry

Course No. - DTC-321

Course Title: Food Chemistry **Credit Hrs-3 (2+1)**

Course Teacher: Dr. Binita Rani

Theory

S. No.	Topics to be covered	No. of Classes
1	Water binding and chemical reaction mediated by water.	1
2	Classification and physico-chemical and structural properties of food proteins.	1
3	Definition, classification of lipids, Unsaponifiable matter contents in various fats and oils, classification and chemical composition.	2
4	Classification of carbohydrates, polysaccharides, viz. linear, branched and modified.	1
5	Properties and utilization of common polysaccharides, viz. cellulose, glycogen, hemicelluloses, pectin.	2
6	Hydrolases and lipases, utilization in food chemistry.	1
7	Main elements, trace elements in eggs, cereals and cereal products, vegetables and fruits.	2
8	Aroma compounds in foods: Threshold value, off-flavours.	2
9	Food additives: Vitamins and Amino acids, Minerals.	2
10	Aroma Substances/flavour enhancers- Monosodium glutamate, 5-nucleotides sugar substitutes, sorbitol sweeteners- saccharin, and cyclamate.	02
11	Food colours and food preservatives.	02
12	Antinutritional factors and Food contaminants: Toxic trace elements, radio nucleotides.	02
13	Antinutritional factors and Food contaminants: radio nucleotides.	01
14	Cereal and cereal products: Individual constituent like proteins in cereal flour and their relationship in dough making.	01
15	Cereal and cereal products: Individual constituents like lipids, in cereals flour and their relationship in dough making.	01
16	Cereal and cereal products: Individual constituents like carbohydrates in cereals flour and their relationship in dough making.	01
17	Cereal and cereal products: Individual constituents like vitamins in cereals flour and their relationship in dough making.	01
18	Influence of additives /minor ingredients on baking properties: physico-chemical changes during baking.	02

19	Legumes: Classification, general composition and physico-chemical properties.	01
20	Vegetables and Fruits: Classification, general composition, chemical changes during ripening and storage.	02
21	Jellies and Pickles: Jams, Jellies and Pickles: Classification, composition and preservation. of food preservation.	02
22	Preservation of foods, general principles.	02
	Total	34

Practical (DTC-321)

S. No.	Practical to be covered	No. of Classes
1	Determination of the order of hydrolysis of an ester/carbohydrate and measurement of activation energy.	01
2	Determination of the progress curve obtained during the hydrolysis of P-nitrophenyl phosphate by milk alkaline phosphatise.	01
3	Determination of the Michaelis constant for the digestion of casein by trypsin.	01
4	Measurement of pH and buffering capacity of different types of milk.	01
5	To study the gel formation and gel stability of milk proteins.	01
6	Preparation of a Tris/phosphate/citrate buffer of a given molarity/ionic strength and pH.	01
7	Determination of pH of the buffer.	01
8	Measuring the stability of an oil-in-water emulsion stabilised by milk proteins.	01
9	Foaming capacity and foam stability of caseins/whey proteins; drawing of an adsorption isotherm of water on casein.	02
	Total	10

Suggested Reading:

1. Food Chemistry by Fennama, O.R.(ed)1996 Marcel Dekker,Inc. New York—
2. Dairy Chemistry & Bio Chemistry by P.F. Fox & P.L.H.Mcsweeney (2003) Kluwer Academic/Plenum Publishers, New York.
3. Food Chemistry by Aurand, L.W & Wood, A.E.(1973) AVI Publishing