FST 305 Food Chemistry (3 Units)

Naturally occurring constituents of foods such as water, proteins, lipids, and carbohydrates vitamins and minerals.Their structures, chemical and physical properties and significance.Chemical, physical and biochemical changes that occur in food during handling, processing and storage. Browning reaction in foods, enzymic and non enzymic browning, significance uses in food industry. Natural food colour, biochemical changes during processing, climateric fruits. Synthetic vitamins and minerals used in food fortification, food toxicants and significance. Metabolism of carbohydrates, lipids, proteins and nucleic acids. Chemistry and mode of action of enzymes and hormones. Chemistry and analysis of selected agricultural products.

Practical: Sampling of various foods for analysis — flour, cocoa beans, cashew, beverages, milk.Proximate composition — determination of moisture content using various methods — moisture meter, Dean and start, oven method. Protein determination using keelhaul method, dye binding method Fat determination by Soxhlet extraction and Garber methods Ash Determination — Total ash, water soluble ash, acid insoluble Ash. Crude fibre determination. Determination of vitamin C using spectrophotometer and titrimetric methods.Polarimetric determination of sugar. Total solids, dissolved solids, pH, and acidity of beverages. Water analysis — hardness and alkalinity of water from different sources.Water analysis for pH, total solids, and residual chlorine. Determination of fatty acids of oil using GLC.Structures of starches.Sugar rotation.Determination of melting point, flame point of oil and fats.Determination of benzoic acid in beverages.Phenolase, peroxidase and catalase tests.Phosphates test/determination.Hydrogen cyanide determination. Non-protein nitrogen determination.