SUGAR TECHNOLOGY

UNIT 1
GENERAL CHEMISTRY


UNIT 2
BIOCHEMISTRY

UNIT 3
SUGAR CHEMISTRY

Optical methods of sugar analysis: Optical Activity, specific rotation of sugars, principle of polarimetry, international sugar scale, normal weight of sugar; methods of simple polarization, double or invert polarization, Clerget constant and factors affecting it. Estimation of Reducing Sugars: Sugar Processing Chemicals: Specifications of lime, sulphur & other chemicals, application of antiscalent, descalents, viscosity reducers, mill sanitizers and flocculants. Water Treatment: Boiler Feed Water: Mineral salts in water, de-mineralization, internal treatment and water conditioning, Quality of feed water, corrosion, de-aeration, caustic embrittlement. Treatment of sugar factory and distillery effluents, norms of various constituents. Sanitation: Microbial contamination in sugar factory - control methods. Leuconostoc mesenteroides - effect of dextran on sugar processing & its removal, lactic acid bacteria

UNIT 4
SUGARCANE AGRICULTURE

Sugar producing plants, origin of sugarcane, major sugar producing countries, sugarcane cultivation in India. Taxonomy & anatomy of sugarcane - the stem, leaves, root system & the flower. Cultivation of Sugarcane; Preparation of land, period of sowing, planting, irrigation, fertilizer application, growth and maturity of crop, harvesting, cane transportation, ratoon crop, sugarcane pests and deceases, cane payment system.

UNIT 5
SUGAR TECHNOLOGY

Sugar Industry in India, flow chart of sugar manufacture; general description of machinery and equipments, Crushing of sugarcane, composition of juice, juice heating, Liming & Sulphitation, Lime slacker, Sulphur burner, sedimentation in clarifier, filtration of mud, evaporation, syrup sulphitation, pan boiling, 3-boiling scheme, concept of brix, pol and purity, crystallization, centrifugation, drying.
grading and bagging of sugar, storage in godown, sugar standards. By products of sugar industry, Role of sugar industry in the social and economic growth of society.

UNIT 6
CHEMICAL ENGINEERING

UNIT 7
ALLIED SUGAR MANUFACTURE

UNIT 8
CO-PRODUCTS
Bagasse: Composition of bagasse, fuel value, use of bagasse for - paper, fibreboard, furfural. Use as cattle feed, agriculture mulch and for bio-compost. Filter Cake: Characteristics of filter cake, use of filter cake as manure, for production of cane wax. Molasses: Classification, Composition, alcoholic
fermentation - manufacture of alcohol, uses of alcohol, Electric Power: Power as a co-product of sugar industry, Economics of power generation, By products and its application.

UNIT 9
STATISTICS

UNIT 10
INDUSTRIAL MANAGEMENT