

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Chemical Engineering

Semester: 4

Subject Name: CHEMICAL PROCESS TECHNOLOGY-II

SrNo	Course Content
1	NATURALPRODUCT INDUSTRIES 1.1 Definition of oil and fat 1.2 Physical properties of oil 1.3 Methods of extraction of vegetable oil by mechanical and solvent extraction 1.4 Hydrogenation of oil 1.5 Manufacturing of glycerin by from fat 1.6 Introduction of paint and varnishes 1.7 Manufacturing of paints from pigments
2	CARBOHYDRATE INDUSTRIES 2.1 Introduction 2.2 Manufacture of sugar from sugar-cane 2.3 Manufacture of starch from maize 2.4 Manufacture of dextrin from starch 2.5 Major engineering problems in manufacturing of sugar
3	PULP AND PAPER PRODUCTS 3.1 Introduction 3.2 Methods of pulp production 3.3 Sulfate (Kraft) and sulfite pulp process 3.4 Manufacture of paper by Fourdrinier machine 3.5 Major engineering problems of paper industries
4	FUEL AND INDUSTRIAL GASES 4.1 Introduction 4.2 Classification of fuel 4.3 Method of production of fuel gases (I) producer gas (II) water gas (III) coke oven gas (IV) natural gas 4.4 Major engineering problems in manufacturing of coke oven gas 4.5 Explanation of Industrial gases
5	FERMENTATION INDUSTRIES 5.1 Introduction 5.2 Types of fermentation processes 5.3 Production of ethyl alcohol by fermentation 5.4 Manufacturing of lactic acid from corn sugar

	5.5 Manufacturing of citric acid from molasses 5.6 Manufacturing of vinegar from frings method
6	FOOD INDUSTRIES 6.1 Introduction 6.2 Manufacturing of fruit juices 6.3 Manufacturing of jam and jelly 6.4 Introduction of dairy product 6.5 Manufacturing of ice-cream
7	PESTICIDES 7.1 Classification of pesticides 7.2. Manufacture of DDT from ethanol and benzene 7.3 Manufacture of Parathion from diethyl phosphorochlorido-thionate and sodium p-nitro phenoxide 7.4. Manufacture of 2-4D from dichlorophenol and chloroacetic acid
8	RUBBER CHEMICALS 8.1 Definition of rubber 8.2 Types of rubber 8.3 Difference between natural rubber and synthetic rubber 8.4 Classification of rubber 8.5 Production of styrene butadiene rubber from styrene and butadiene 8.6 Explain vulcanization of rubber
9	Miscellaneous 8.1 Chemical from sea 8.2 Production of bromine from sea water 8.3 Classification of electrochemical industry 8.4 Introduction of cryogenic and biotechnology in chemical industry

LABORATORY EXPERIMENT:

1. Preparation of apple jam
2. Preparation of jelly
3. Preparation of Ice-cream
4. preparation of fruit juice
5. Estimation of Acid value of oil
- 6 Estimation of Iodine value of oil
- 7 Preparation of citric acid from fruit
8. Preparation of glycerine from by from soap and fatty acid

REFERENCE BOOKS:

- 1 Outlines of Chemicals Technology by M.Gopala Rao
- 2 Chemical Process Industry by Shreve and Austin
3. Chemical Technology by vol.I&II by G.N. Panday
- 4 Industrial chemicals by Faith, Keyes and Clark
5. Industrial chemistry by Dr. B. K. Sharma