

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 3 Chemical Engineering

Subject Code 130501

Subject Name Organic Chemistry and Unit Processes

Sr.No	Course contents
1	Petroleum and Natural gas Occurrence- Composition of crude oil- Distillation of the crude oil- cracking- anti Cracking- knocking octane number- cetane number- synthetic petrol
2	Colour dyes and Pigments Introduction – colour and constitution- modern theory of colour – Dyes – Classification- Application- Pigments and application
3	Organic reactions and Mechanisms : Types of organic reactions- nucleophilic and Electrophilic reaction and mechanisms- Addition, substitution, nitration sulphonation, halogenations, oxidation reaction and Biochemical reactions and their mechanisms
4	Introduction to various Unit Processes such as Nitration, Amination, Hydrogenation, Halogenations, Oxidation, Reduction, Sulphonation and Sulphation, Hydrolysis, Alkylation ,polymerization etc
5	Isomerism- stereochemistry- chemistry of compound which have asymmetric carbon- geometrical isomerism in tartaric acid, glycol, valeric acid etc.
6	Carboxylic acid : Introduction- use in diff. Reactions and manufacture process- acetic acid, Formic acid, Oxalic acid, palmitic acid, stearic acid conversion of carbocyclic acid from diff. Compound and reactions. Resonance in carboxylic acid- measurement of strength of acid with examples- Esters- Acetic ester manufacture process- properties and uses and its importance in certain reactions
7	Alkyl Halide :- Manufacture process, properties and uses Grignard reagents, TEL etc.
8	Chemistry of Organic Compounds Chloroform, Ethyl alcohols, Acetone, Acetic anhydride, Formaldehyde, Poly ethylene etc
9	Carbohydrate Introduction- classification and Chemical reactions of mono, oligo and poly saccharide, Manufacture process of Glucose, sugar, starch. Conversion- Higher aldose to lower aldose, lower to higher aldose, aldose to ketose, ketose to aldose etc.

10	Aromatic Compound: Manu process, properties and uses, phenol, Amine, Thiols,soaps and detergents
11	Application of following reactions with mechanism canizaro, stobe, pericin, retromatasky. Michael Dickmann, welf kishners, and lucard reactions.
12	Polynuclear aromatic compound : Naphthalene and its derivatives, sulfonation aminofication of Nephthalene.
13	Chemistry of tatrocyclic compound : Five member ring, six member ring compound
14	Chemistry of Benzene; Isolation; Structure; Chemical Reactions; Properties and uses
15	Synthetic and Natural organic polymers: Properties of polymer, Synthetic Organic polymer Proteins, Nucleic acid- other examples
16	Introduction to various Unit Processes such as Nitration, Amination, Hydrogenation, Halogenation, Oxidation, Reduction, Sulphonation and Sulphation, Hydrolysis, Alkylolation etc

Reference Books:

1. Organic Chemistry vol. –2 By I. L. Finar
2. Organic Chemistry- Hendroson and Hamannnd
3. Organic Chemistry- Morrison-Boyd
4. Organic Chemistry- Fisher & Fisher
5. Organic Chemistry- P. L. Soni
6. Unit Processes in Organic synthesis by P.H. Groggins