

# VEER NARMAD SOUTH GUJARAT UNIVERSITY

## Third Year B. Sc. Semester -VI Chemistry

### Chemistry-Generic elective subject–Petrochemicals

#### Proposed syllabus from July 2021

50 Marks (External)

Total: 30 Hrs

20 Marks (Internal)

Time: 2 Hrs. (Uni. Exam)

#### UNIT – I

**Topic : 1 : Petrochemicals obtained from C3-cut of petroleum. 6 Hrs.**

Manufacture and industrial applications of chemicals obtained from Propylene: Isopropyl alcohol, Acetone (Wacker-Chemieprocess), Propyleneoxide (Halcon process), Acrylonitrile, Glycerol and Isoprene, Propylene tetramer, Acrylic acid, n-Butyraldehyde (Oxoprocess), Methyl isobutyl ketone, Methylmethacrylate.

**Topic : 2 : 4 Hrs.**

General account of petrochemicals used as monomers in the manufacture of polyester fibers, manufacture of DMT, Terphthalic acid, Phthalic anhydride, Maleic anhydride, 1:4 Butanediol and other monomers like Pentaerithritol and Di-isocyanates.

#### UNIT-II

**Topic : 1 : The method for the large scale production with flow diagram and uses of: 5 Hrs.**

(i) Acetoacetanilide (ii) Anthraquinone (iii)  $\beta$ -naphthol from naphthalene (iv) Bon acid (v) Aspirin (vi) Chloramphenicol (vii) Paracetamol (viii) p-Aminophenol.

**Topic : 2 : Miscellaneous petrochemicals 5 Hrs.**

Definition of synthetic detergents, hard and soft detergents. Synthesis of DDDBS. Synthesis of Fluoresein, Malachite Green, Chrysoidine and Indigo. Definition of Explosive, list of basicraw materials for explosives and list of explosives derives from these raw materials. Synthesis of Tetryl, PETN and Dynamite. Definition insecticides, classification of insecticides on basis of mode of action. Synthesis of Methoxychlor, Captan, Parathion, Malathion.



### UNIT-III

**Topic : 1 : Chemicals obtained from C4 & C5 cut of petroleum.**

**4 Hrs.**

Manufacture and industrial applications of Butadiene, Butylalcohols, Methylterbutyl ether (MTBE), Cyclopentadiene, Sulpholane.

**Topic : 2 : BTX aromatic :**

**6 Hrs.**

Recovery process of BTX, manufacture and industrial applications of benzene, toluene, xylene, naphthalene, phenol, styrene.

**Reference Books:**

- (1) Introduction to petrochemicals by SukumarMaiti, Oxford and IBH Pubs Co. New Delhi.
- (2) A text on petrochemicals by Dr.B.K. Bhaskar Rao, Khanna Pubs. New Delhi.
- (3) Chemicals from petroleum by A.L.Wadams (ELBS and John Murray London)
- (4) Petrochemicals by S.L.Venkatewarn (Colour Pubs. Pvt. Ltd. Bombay)
- (5) PetrochemicalsdigestbyMGKManon(AsiaPublishinghouseBombay)
- (6) Hand book of industrial chemicals Vol-I by K. M. Shah (Multi tech publishing co. 15 yogesh,hingwala lane, ghatkoper (E) Bombay-400077)
- (7) Industrial chemistry including chemical engineering by B.K.Sharma, Goel Pubs. House, Meerut.
- (8) Hand Book of Synthetic Dyes and Pigments (Vol.II) By K.M.Shah, Multi-tech Publishing Co.

