

## Syllabus

# (BP401T) PHARMACEUTICAL ORGANIC CHEMISTRY-III

### Module-1 10 Hours

#### Stereo Isomerism

- Optical isomerism – Optical activity, enantiomerism, diastereoisomerism, meso compounds.
- Elements of symmetry, chiral and achiral molecules.
- DL system of nomenclature of optical isomers, sequence rules, RS system of nomenclature of optical isomers.
- Reactions of chiral molecules.
- Racemic modification and resolution of racemic mixture.
- Asymmetric synthesis: partial and absolute.

### Module-2 10 Hours

#### Geometrical Isomerism

- Nomenclature of Geometrical Isomers (Cis Trans, EZ, Syn Anti systems).
- Methods of Determination of configuration of geometrical isomers.
- Conformational isomerism in Ethane, n-Butane and Cyclohexane.
- Stereo isomerism in biphenyl compounds (Atropisomerism) and conditions for optical activity.
- Stereospecific and stereoselective reactions.

### Module-3 10 Hours

#### Heterocyclic Compounds

- Nomenclature and classification.
- Synthesis, reactions and medicinal uses of following compounds/derivatives.
- Pyrrole, Furan, and Thiophene.
- Relative aromaticity and reactivity of Pyrrole, Furan and Thiophene.

### Module-4 08 Hours

#### Synthesis, Reactions and Medicinal Uses of Following Compounds/Derivatives

- Pyrazole, Imidazole, Oxazole and Thiazole.
- Pyridine, Quinoline, Isoquinoline, Acridine and Indole. Basicity of pyridine.

#### Synthesis and Medicinal Uses of

- Pyrimidine, Purine, azepines and their derivatives.

### Module-5 08 Hours

#### Reactions of Synthetic Importance

- Metal hydride reduction ( $\text{NaBH}_4$  and  $\text{LiAlH}_4$ ), Clemmensen reduction, Birch reduction, Wolff Kishner reduction.
- Oppenauer-oxidation and Dakin reaction.
- Beckmanns rearrangement and Schmidt rearrangement. Claisen-Schmidt condensation.