Gujarat Technological University
M. Pharm. Syllabus
Semester I
910203 : Subject of Specialization Paper- II
Advances in Pharmacology
Theory
(Four hours per week, 6 Credits)

Course Content: **Hours**

Recent advances in pharmacology of the following:

1. **Drugs acting on the peripheral nervous system**: Sympathomimetics, Sympatholytics, Parasympathomimetics, Parasympatholytics, Ganglion blockers & Stimulants, Neuromuscular blockers. **15**
2. **Autacoids** : Eicosanoids, Polypeptides, Histamine, 5-HT **07**
3. **Antimicrobial and Antineoplastic agents** : Introduction to infectious disease, general Principles of Chemotherapy and management of infectious disease, Sulphonamides & Co-trimoxazole, Penicillins, Cephalosporins, Macrolide antibiotics, Aminoglycosides, Quinolones, Tetracycline & Chloramphanicol, Chemotherapy of Tuberculosis & Leprosy, Antifungal agents, Anti-viral agents, Anti-protozoal agents, Anthelmintics, Chemotherapy of Sexually Transmitted Disease (STD), Types of cancers ,their management with Anti- Cancer agents and radiation therapy. **30**
4. **Immunopharmacological agents:**
   Immunostimulants, Immunosuppressant **08**

Reference Books:

1. Pharmacological basis of Therapeutics-Goodman and Gilman
2. Pharmacology-Rang and Dale
3. Principles of Pharmacology – Paul L. Munson
4. Lewis's Pharmacology – James Crossland – Churchil Livingstone
5. Modern Pharmacology with clinical applications- Craig, Charles R.
6. Lippincott's illustrated reviews of Pharmacology- Mycek Mary J.
7. Goth's Medical Pharmacology- Wesley G. Clark
8. Principles of pharmacology.--H. L. Sharma
9. Essentials of medical pharmacology --K. D. Tripathi

Gujarat Technological University
M. Pharm. Syllabus
Semester I
910101 : Subject of Specialization Paper – I
Advanced Organic Chemistry – I

Theory
(Four hours per week, 6 Credits)

Course Content: **Hours**

1. Chemical Bonding and Structure: **06**
Chemical Bonding, Bond Energies, Orbital Theory, Orbital Hybridization, Resonance, Electronegativity, Polarity, Hyperconjugation.

2. Chemical Reactivity and Molecular Structure **06**
Kinetics, Stearic, Inductive and electrostatic effect on reactivity, Acids and Bases.

3. Various Reaction Mechanisms

a. **Substitution Reaction:** Nucleophilic substitution reaction in aliphatic systems, SN1, SN2 reactions, Hydride transfer reaction, Cram's rule, Participation of neighbouring group in nucleophilic substitution reaction and rearrangements.

   Aromaticity, electrophilic and nucleophilic substitution in aromatic systems, Reactivity, orientation in electrophilic substitution. **12**

b. **Elimination Reaction:** Beta Elimination reactions, E1, E2 and E1cb mechanisms, Hoffman and saytzeff's rule for elimination. **06**

c. **Addition Reaction:** Electrophilic and Nucleophilic additions, Stereochemiistry involved, Markonikov's rule. **03**

d. **Rearrangement Reactions:** Transannular rearrangement, Pinacol rearrangements, Beckman rearrangement, Hofmann rearrangement. **05**

e. **Free Radical Reaction:** Formation, Detection, Reactions, Homolysis and free radical displacements, addition and rearrangements of free radicals. **04**

4. Reactions of carboxylic acids and esters
BAC2, AAc2, BAL2, BAL1, AAL1, Claisen condensation, decarboxylation, carbanions, enolisation, keto-enol equilibria **08**

5. Y-lides: Introduction, generation and reactions involving phosphorus, sulphur and nitrogen y-lides. **05**

6. Photochemistry: Theory, energy transfer, characteristics of photoreactions, typical photochemical reactions **05**