

**SR&BGNR GOVERNMENT ARTS & SCIENCE COLLEGE
(AUTONOMOUS)
KHAMMAM – TELANAGANA STATE**

Hazardous Waste Management



SR&BGNR. Government Arts & Science College (Autonomous), Khammam
B.Sc., Chemistry-III-Year-New-CBCS Syllabus (for the batch admitted in 2019-2020)

Semester-VI, Paper-VI (DSE)
Discipline Specific Elective-A (4-Credits)
Medicinal Chemistry & Green Chemistry

60 h (4 h/w)

Unit-I: Introduction and Terminology:-

15h

S6-E-A-I: Diseases: Common diseases, infective diseases – insect-borne, air-borne, water-borne and hereditary diseases.

Terminology in Medicinal Chemistry: Drug, Active Pharmaceutical Ingredient (API), Pharmaceuticals, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics, Agonist and Antagonist drugs, Metabolites, Anti-metabolites and Therapeutic Index.

Drugs: Nomenclature, Chemical name, Generic name and Trade names with examples.

Classification: Classification based on structures and therapeutic activity with examples.

ADMET: a). **Absorption:** Definition, absorption of drugs across the membrane – active and passive absorption, routes of administration of drugs. b). **Distribution:** Definition and effect of plasma protein binding. c). **Metabolism:** Definition, Phase-I and Phase-II reactions. d). **Elimination:** Definition and renal elimination. e). **Toxicity.**

Unit-II: Synthesis and Therapeutic Activity of Drugs:-

15h

S6-E-A-II: Introduction, Synthesis and therapeutic activity of

Chemotherapeutics: Sulphanilamide, Dapsone, Penicillin-G (Semi-synthesis), Chloroquin, Isoniazid, Cisplatin and AZT.

Drugs to treat metabolic disorders: Antidiabetic-Tolbutamide, Antiinflammatory-Ibuprofen, Cardiovascular -Glyceryl trinitrate, Antipyretic-Paracetamol, Aspirin and Antacid-Omeprazole.

Drugs acting on nervous system: Anesthetics-definition, Classification-local and general. Volatile-Nitrous oxide, Chloroform, uses and disadvantages. Local anaesthetics-Benzocaine.

Unit-III: Molecular Messengers, Vitamins and Micronutrients:-

15h

S6-E-A-III: Molecular Messengers: Introduction to hormones and neurotransmitters, Thyroid hormones: Antithyroid drug-Carbimazol. Adrenaline: Adrenergic drugs-Salbutamol, Atenolol. Serotonin: SSRIs-Fluxetine, Dopamine: Anti-parkinson drug-Levodopa.

Vitamins and Micronutrients: Introduction, Vitamin sources, Deficiency disorders and remedy of Vitamins A, B, C, D, E and K. Micronutrients-Na, K, Ca, Cu, Zn and I.

Wing
S. Sarwan
Rammy

Ramesh
(Dr. P. Ramesh) 18/9/21
Chairman, BOS
Dept. Of Chemistry

Unit-IV: Green Chemistry and Green Synthesis:-

15h

S6-E-A-IV: Introduction to Green Chemistry: Definition and need of Green Chemistry, Basic Principles of Green Chemistry, Concept of Atom Economy, 100% Atom economy reactions with examples (Rearrangement reactions and Addition reactions). 8h

S6-E-A-V: Green Synthesis: Aqueous phase reactions, Solvent-free reactions (Solid supported synthesis), Microwave Assisted reactions and Ultrasound assisted reactions with 2-examples for each type. 7h

Recommended Text Books and Reference Books:

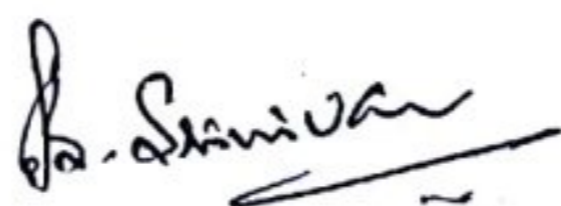
1. Introduction to Medicinal Chemistry, G.I. Patrick, Oxford University Press, New York, 2013.
2. Medicinal Chemistry, Thomas Nograndy, Oxford Univ. Press, New York, 2005.
3. Foye's Principles of Medicinal Chemistry, David William and Thomas Lemke, Lippincott Williams & Wilkins, 2008.
4. Medicinal Chemistry, Ashutosh Kar, New Age International, 2005.
5. Synthetic Drugs, O.D. Tyagi & M. Yadav, Anmol Publications, 1998.
6. Medicinal Chemistry, Alka . Gupta, Pragati Prakashan.
7. Drugs, G.L. David Krupadanam, D. Vijaya Prasad, K. Varaprasad Rao, K:L.N. Reddy, C. Sudhakar, Universities Press (India) Ltd., 2012.
8. Green Chemistry, V.K. Ahluwalia, Narosa Publications, New Delhi.
9. Green Chemistry – Theory and Practice, P.T. Anastas and J.C. Warner.
10. Real world cases in Green Chemistry, M.C. Cann and M.E. Connelly.





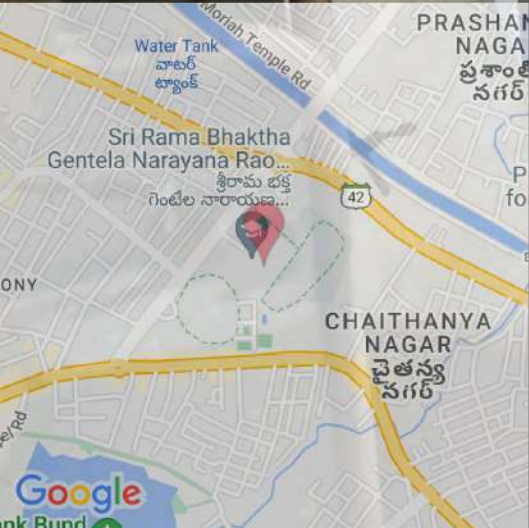
 12/9/21


Rommy


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