Course Title: Medicinal Chemistry

Course Code: CH-827

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

The medicinal chemistry course explores how chemists modify a molecule s structure to design a safe and effective drug. This course opens with a brief history of drug discovery and introduces the modern drug approval process.

Course Outcomes:

After completion of a course, students will be familiar about receptors and enzymes, the body s molecules most often targeted by drugs, and of pharmacokinetics (drug adsorption, elimination, and half-life) and metabolism. Students also able to synthesize how potential drug molecules are identified and subsequently optimized into safe and effective drugs

Course Contents

Introduction: Historical perspectives of drug targets, pharmacokinetics and pharmacodynamics. **Biological screening**: Different types of bioassays, in vitro and in vivo testing of different compounds. **Drug discovery**: The lead compound, natural and synthetic sources of lead compounds. **Drug synthesis**: Combinatorial and solid phase synthesis of drug like compounds. **Structure activity relationship. Binding interactions: Computer assisted drug designing:**

Recommended Books

1. J.N. Delgado and W.A. Remens, Textbook of Organic and Medicinal Chemistry, 10th ed., Lippincolt William and Wilkins (1998), 11th ed. (2004).
2. C.L. Patrick, Introduction to Medicinal Chemistry, OUP (2001).
3. P.K. Larsen, Drug Design and Development, 2nd ed., Harward Academic Publishers (1996).
4. G. Thomas, Fundamentals of Medicinal Chemistry, John Wiley (2003).
5. Advanced Pharmaceutics, C.J CRC. Press (2004).
6. P. Sencer, Solid Phase Synthesis and Combinatorial Technologies, Wiley Intense (2000).
7. C.G. Wenments, Medicinal Chemistry, Academic Press (2004).
8. B. Yan, Analytical Methods in Combinatorial Chemistry, Technomic Publishers (2000).
9. R.B. Silverman, The Organic Chemistry of Drug Design and Drug Action, 2nd ed., Academic Press (2004).