Fall semester	
Drug Design	
Course code	PC 508
Programme(s) on which the course is given:	Bachelor of pharmacy - PharmD Program
Academic year:	Level 3 – First semester
Contact hours (credit hours):	Lecture: 2 (2), Practical: 2 (1), Total: 4 (2+1)

Overall Aims of Course

Upon successful completion of this course the students will be able to:

- Have knowledge about the recent techniques used in drug design process
- Be able to predict the pharmacological activity of the compounds from their chemical structure and metabolism of drugs
- Know all about cardiovascular system (CVS) acting drugs.

Practically deal with computer aided drug design software.

- The prime objective of this course is to introduce students to the essentials of Medicinal Chemistry, and how the biological and toxicological activities of drugs are strongly correlated to their chemical structures (Structure-activity relationship; SAR), physicochemical properties and metabolic pathways. The molecular aspects governing pharmacokinetics (ADME), pharmacodynamics, optimization of drug actions and their possible side effects in relation to their chemical structures are also covered. The course is also designed to familiarize the students with the concepts of molecular modeling including structure-based and ligand-based drug design. It also covers the process of drug discovery and development from target identification until approval of a new drug. Much concern is given to lead structure identification, optimization aiming to target specific receptor and enzyme active sites. Additionally, the course addresses specific concepts of Medicinal Chemistry including molecular docking, pharmacophore generation, prodrug design, stereochemistry alterations, bioisosteric modification, drug metabolism and Quantitative Structure-activity relationship (QSAR).