Course Title: Supramolecular Chemistry

Course Code: CH-816

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

Supramolecular chemistry course program (CHM-807) is designed so that our postgraduate students can have a thorough knowledge of supramolecular chemistry/molecular nanotechnology. This course will help students a better chance to get jobs in the nanotechnology industry in the international market and they will be well prepared to do research work in Pakistan and abroad in this cutting edge technology.

Course Outcomes

The main objective of this course is to provide students an advanced level of understanding regarding the principles and applications of supramolecular systems. Students will learn and understand basic concepts of host-guest (supramolecular) chemistry and molecular recognition and their application in nanotechnological devices, such as nanostructured solar cells and artificial photosynthesis.

Course Contents

a. Introduction to Nanotechnology and Supramolecular Chemistry
b. Principles of Molecular Recognition
c. Macrocycles in Supramolecular Chemistry
d. Complexation of Cations
e. Complexation of Anions
f. Complexation of Neutral Molecules
g. Non-covalent Interactions in Supramolecular Chemistry
h. Supramolecular Design Strategy & Nanotechnology
i. Applications of Supramolecular Chemistry
j. Experimental Techniques in Supramolecular Chemistry

Recommended Books

1. J.W. Steed; J.L. Atwood. Supramolecular Chemistry, John Wiley, Chichester, 2000.

2. J.W. Steed, D.R. Turner, K.J. Wallace. Core Concepts in Supramolecular Chemistry and Nanochemistry. John Wiley, Chichester, 2007.
3. J.-M. Lehn. Supramolecular Chemistry: concepts and perspectives, VCH, Weinheim, 1995.
4. F. Vogtle. Supramolecular Chemistry, 1991.
5. D. Parker (ed.), Macrocycle Synthesis: A Practical Approach (Practical Approach in Chemistry Series), Oxford University Press, Oxford, 1996.