

Course Title: Heterocyclic and Organometallic Compounds

Semester: VII
Code: CH-470
Credit Hours: 3-0
Prerequisite: Nil

Course Objectives

1. Students will acquire knowledge about C-Hetero atom bond with emphasis on how it is formed and how it reacts. The importance and applications of compounds containing heteroatom should also be discussed.

Course Contents

2. Aromatic Heterocycles: Five and six membered heterocycles, Structure, classification and nomenclature. Aromaticity; basicity and acidity of the nitrogen heterocycles; synthesis and reactions, chemistry of furan, pyrrole and thiophene, pyridine; Organometallic Compounds: Principles, organomagnesium, organolithium, organocopper, organocadmium, organo-mercury and organo-zinc compounds: their structure and reactivity, methods of preparation and synthetic applications. Chemistry of organic compounds containing sulfur, phosphorus, boron and silicon: synthesis, reactions and application.

Course Outcomes

3. After studying this course, students will have knowledge about heterocyclic compounds constituting, important class of organic compounds and their medicinal alongwith daily life applications.

4. **Text book**

- a. Joule, J. A., Mills, K., Heterocyclic Chemistry, 5th ed., John-Wiley & Sons, UK,(2010).
- b. Crabtree, R. H., The Organometallic Chemistry of the Transition Metals, 5th ed., John-Wiley & Sons, New Jersey, (2009).

5. **Recommended Books:**

- a. Clayden, J., Greeves, N. and Warren, S., Organic Chemistry, 2nd ed., Oxford University Press, (2012).
- b. Coxon, J. M. Norman, R. O. C., Principles of Organic Synthesis, 3rd ed.,