Organometallic Chemistry (CHEM 421)

Dr. Khalid Alrashidi

Email: Kalrashidi@ksu.edu.sa
Office: 1A103
Building: 5

King Saud University
Department of Chemistry

1446

COURSE DESCRIPTION

- Organometallic Chemistry Introduction; definition, classification and stability of organometallic compounds
- A brief overview of the nature of organometallic compounds of the basic elements (classification and synthesis methods)
- Studying the organotransition metal complexes
- Classification of ligands
- 18-electron rule and its applications
- Nature of bonding in transition metal complexes
- Main group-complexes
- Metal-carbon bond cleavage reactions, oxidative-addition reactions
- Applications in homogeneous and heterogeneous catalysis

Course Objectives

After completing this course, the student will be able:

1. To understand the **introduction** of organometallic compounds; definition, classification, and stability of organometallic compounds
2. To understand the **classification** and synthesis of main group organometallic compounds
3. To understand the organotransition metal complexes,
4. Classification of ligands
5. To understand the 18-electron rule and its applications
6. To understand the **metal-carbon bond cleavage reactions**
7. To understand the oxidative-addition **reactions**, applications in homogeneous and heterogeneous **catalysis**..

Lecture schedule

Subject 1	**I**ntroduction of organometallic compounds; definition, classification, and stability of organometallic compounds
Subject 2	Bonding and synthesis of main group organometallic compounds
Subject 3	p-group organometallic compounds
Subject 4	Transition metals organometallic compounds
Subject 5	Classification of Ligands
Subject 6	18 electrons Rules
Subject 7	Oxidative Addition and Heterogeneous catalysis

Reference

• Book Sources:

- Principle of Organometallic Chemistry,
Green, Coates, edit Powell and Wade. English version
- Inorganic Chemistry
Miessler, Gary L

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

No	Performance	Marks
1	Quiz	10%
2	Homework	10%
3	Mid term exam	30%
4	Final term exam	40%
5	Class Attendance	10%
Total		**100%**