



Organometallic Chemistry

Course Code	Course Num.	Course Name	Credit Hours	Lec	Lab	Tut	Prerequisites
CHM	313	Organometallic Chemistry	3	3	0	0	CHM 101

Objectives:

- Improve the student's knowledge of the basic information about organometallic chemistry.
- Outline organometallic reactions and catalysis,
- Recall the applications of organometallics (catalytic processes, organic synthesis, therapeutics, biocides, qualitative and quantitative analysis, metallurgical operations and polymers).

Syllabus:

Introduction.

Organic ligands and nomenclature.

Ligands in organometallic chemistry.

Bonding between metal atoms and organic π systems.

Complexes containing $M-C$, $M=C$, and $M \equiv C$, Alkyl and related complexes, Carbene complexes, Fischer-type carbene complexes, Schrock-type carbene complexes.

Organometallic reactions and catalysis.

Applications of Organometallics, Ziegler-Natta catalysis and Wilkinson catalysis, Organic synthesis, Therapeutics, Biocides, Qualitative analysis, Quantitative analysis, Metallurgical operations, Polymers.

Textbook

Organometallic Chemistry, G. S. Sodhi, Ane Books Pvt. Ltd. ISBN: 8180521982, 2009.

References:

1. Inorganic Chemistry 4th Edition, Gary L. Miessler and Donald A. Tarr., Publisher: Prentice Hall: 2010, ISBN 10:0136128661.
2. Inorganic Chemistry, 2nd Edition, Catherine E. Housecroft and Alan G. Sharpe, Publisher: Pearson Education Limited, 2005, ISBN 0130-39913-2.
3. Organotransition Metal Chemistry, Anthony F. Hill, The Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge CB4 0WE UK, 2002.
4. The organometallic chemistry of the transition metals, Robert H. Crabtree, 4th, Yale University, New Haven, Connecticut, A John Wiley & Sons, Inc., Publication 2005

