

Course Title: Organic Spectroscopy-1

Semester: VII

Course Code: CH-472

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

1. Students will acquire knowledge regarding electromagnetic spectrum; units and their interconversion; the absorption of electromagnetic radiation by organic molecules. This course also provides fundamental and instrumental aspects of different spectroscopic techniques like UV and IR and will be able to perform structural elucidation of organic compounds using spectral data.

Course Outcomes

2. After successful completion of this course, students will have capability to perform initial structural elucidation of organic compounds by using spectroscopic techniques like UV and IR.
3. Molecular formula and its determination: Molecular mass determination; rule of thirteen and molecular formula; index of hydrogen deficiency.
4. IR Spectroscopy: Electromagnetic radiations: IR; modes of vibration, sampling techniques, factors influencing the vibration frequencies and industrial applications along with spectra interpretation.
5. UV Spectroscopy: Ultraviolet (UV) or electronic spectroscopy: electronic transition; factors influencing the λ_{max} value, spectra interpretation.

Text book:

6. Spectroscopic Methods in Organic Chemistry 6th ed. by D. Williams and I. Fleming. Wiley-VCH, (1991).

Recommended books:

7. Organic Chemistry, Volume I (6th ed.) & II (5th ed.) by I.L. Finar, Pearson Education (Singapore) Pvt. Ltd, (2008).
8. March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 6th ed. By Michael B. Smith, Jerry March, Wiley, (2007).
9. Organic Chemistry 6th ed. by Francis A. Carey, McGraw Hill, (2005).
10. Principles in Organic Synthesis by R.O.C Norman & J. M. Coxon, Chapman and Hall, (1993).
11. Organic Chemistry by Jonathan Clayden, Nick Greeves, Stuart Warren, Oxford University Press (2000).
12. Spectrometric identification of Organic Compounds 6th ed. by R. M. Silverstein and F. X. Webster, Wiley, (2007).
13. Organic Spectroscopy and Chromatography by M. Younas, ILMU, Pakistan, (2007).