NOC:Chemistry - II - Video course

COURSE OUTLINE

Molecular Spectroscopy is a fundamentally important branch of Physical Chemistry and is vital for all practicing chemists, biologists and material scientists. It is also the field providing experimental verification of a large number of quantum mechanical concepts and enables researchers to obtain some of the most basic and important information about molecules such as bond length, bond angles, bond strengths, optical and magnetic properties. Primarily studied through the interaction of molecules with electromagnetic radiation of different types, molecular spectroscopy is studied through responses of molecules to radiation.

COURSE DETAIL

WeekNo.	Topics
1.	Introduction to Spectroscopy
2.	Introductory Quantum Mechanics
3.	Elementary introduction to Vibrational (Infra-red) Absorption Spectroscopy of Diatomic Molecules
4.	Vibrational (Infra-red) Absorption Spectroscopy of Polyatomic Molecules: Normal Modes
5.	Vibrational Raman Spectra of Diatomic and Polyatomic Molecules
6.	Microwave Spectroscopy of Diatomic molecules
7.	Microwave Spectroscopy of Polyatomic Molecules and Elementary Electronic Spectroscopy
8.	Molecular Interactions and Rotation-Vibration and Vibration-Electronic Coupling

NP-TEL

NPTEL

http://nptel.ac.in

Chemistry and Biochemistry

Pre-requisites:

Mathematics at the High school level; Students should have a basic background in chemistry, calculus and elementary linear algebra; Knowledge of elementary thermodynamics and atomic structure will be helpful.

Additional Reading:

1. C. N. Banwell and E. M. McCash, Fundamentals of Molecular spectroscopy, Tata McGraw-Hill Publishing Company, New Delhi, 1994 or later edition.
2. J. M. Hollas, Molecular Spectroscopy, John Wiley and Sons, Ltd. 2004 or later edition.

Coordinators:

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