

Lesson Plan

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Class and Section: M.Sc. Physics 4th Sem.

Subject: Atomic and Molecular Physics

Paper code: 19PHY24HC1

Week	Date	Topics
1	1 st March- 7 th March	Unit I:
		Single Electron systems and Pauli principle
		Quantum states of one electron atoms,
		Atomic orbitals
		Hydrogen spectrum
		Pauli principle
		Spectra of alkali elements
2	7 th March- 14 th March	Spin orbit interaction and fine structure in alkali spectra
		Spectra of two electron systems
		Equivalent and non-equivalent electrons
		The influence of external fields
		Two electron system Hyperfine structure and Line broadening
		Normal and anomalous Zeeman effect
3	15 th March- 21 th March	Paschen Back effect
		Stark effect
		Two electron systems
		Interaction energy in LS and jj coupling
4	22 th March- 28 th March	Hyperfine structure (magnetic and electric, only qualitative)
		Diatomic molecules and their rotational spectra
		Types of molecules
		Diatomic linear symmetric top
5	29 th March- 4 th April	Asymmetric top and spherical top molecules
		Energy levels and spectra of non-rigid rotor
		Intensity of rotational lines
		Vibrational and Rotational spectra

6	5 th April- 11 th April	Vibration spectra of Diatomic molecules
		Vibrational energy of diatomic molecule
7	12 th April- 18 th April	Diatomic molecules as a simple harmonic oscillator
		Energy levels and spectrum
		Morse potential energy curve
8	19 th April- 25 th April	Molecules as vibrating rotator
		Vibration spectrum of Diatomic molecules
		PQR Branches Note
9	26 th April- 2 nd May	Revision and test