

## Lesson Plan

Name of the Assistant/ Associate Professor: -Dr. Vinod, Ms. Neha, Ms. Seema

Class and Section: M.Sc. Physics (Semester 4<sup>th</sup>)

Subject: Atomic & Molecular Physics

Paper code: PHY 402

Week	Date	Topics
1	1-Jan-18	Spectrum of He-atom and Heisenberg resonance
	2-Jan-18	do
	3-Jan-18	Physical interpretation of quantum numbers
	4-Jan-18	do
	5-Jan-18	Pauli principle
	6-Jan-18	Building-up principle
	7-Jan-18	Sunday
2	8-Jan-18	Terms for equivalent & non-equivalent electron atom
	9-Jan-18	do
	10-Jan-18	Space Quantization: Stern-Gerlach experiment
	11-Jan-18	do
	12-Jan-18	Normal Zeeman effect
	13-Jan-18	Anomalous Zeeman effect
	14-Jan-18	Sunday
3	15-Jan-18	do
	16-Jan-18	Stark Effect
	17-Jan-18	Paschen – Back effect
	18-Jan-18	do
	19-Jan-18	Problem on above topics
	20-Jan-18	test
	21-Jan-18	Sunday
4	22-Jan-18	Vasant Panchami
	23-Jan-18	Intensities of spectral lines: General selection rule
	24-Jan-18	Sir Chhotu Ram Jayanti
	25-Jan-18	General selection rule,
	26-Jan-18	Republic Day
	27-Jan-18	Hyperfine structure of Spectra lines: Isotope effect
	28-Jan-18	Sunday
5	29-Jan-18	Effect of Nuclear Spin
	30-Jan-18	Assignment
	31-Jan-18	test

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Week	Date	Topics
1	1-Feb-18	Rotation of molecules: Classification of molecules
	2-Feb-18	Interaction of radiation with rotating molecules
	3-Feb-18	do
	4-Feb-18	Sunday
2	5-Feb-18	Rotational spectra of rigid diatomic molecules
	6-Feb-18	Isotope effect in rotational spectra
	7-Feb-18	Intensity of rotational lines
	8-Feb-18	Non rigid rotator
	9-Feb-18	Information derived from rotational spectra
	10-Feb-18	Maharshi Dayanand Saraswati Jayanti
	11-Feb-18	Sunday
3	12-Feb-18	Infrared spectroscopy: Vibrating diatomic molecule
	13-Feb-18	Maha Shivratri
	14-Feb-18	do
	15-Feb-18	Diatomic vibrating-rotator spectra of diatomic molecules
	16-Feb-18	Infrared spectrophotometer
	17-Feb-18	do
	18-Feb-18	Sunday
4	19-Feb-18	Raman Spectroscopy: Introduction
	20-Feb-18	Pure rotational Raman spectra
	21-Feb-18	Vibrational Raman Spectra
	22-Feb-18	Nuclear Spin and intensity alternation in Raman spectra
	23-Feb-18	do
	24-Feb-18	Isotope effect
	25-Feb-18	Sunday
5	26-Feb-18	Raman Spectrometer
	27-Feb-18	Assignment

	28-Feb-18	As per Uni. Calendar Holiday
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Week	Date	Topics
1	1-Mar-18	Guru Ravidas Birthday
	2-Mar-18	Holi
	3-Mar-18	As per Uni. Calendar Holiday
	4-Mar-18	Sunday
2	5-Mar-18	Born Oppenheimer approximation
	6-Mar-18	Vibrational coarse structure of electronic bands
	7-Mar-18	do
	8-Mar-18	Progression and sequences
	9-Mar-18	Intensity of electronic bands-Frank Condon Principle
	10-Mar-18	do
	11-Mar-18	Sunday
3	12-Mar-18	Dissociation and pre-dissociation
	13-Mar-18	Dissociation energy
	14-Mar-18	Rotational fine structure of electronic bands
	15-Mar-18	The Fortrat parable
	16-Mar-18	do
	17-Mar-18	test
	18-Mar-18	Sunday
4	19-Mar-18	Electronic structure of diatomic molecules
	20-Mar-18	Fluorescence spectroscopy: Fluorescence and Phosphorescence
	21-Mar-18	Kasha's rule, Quantum Yield
	22-Mar-18	Nonradiative transition
	23-Mar-18	Shaheedi Diwas of Bhagat Singh, Rajguru & Sukhdev
	24-Mar-18	Jablonski Diagram
	25-Mar-18	Sunday/ Ram Navami
5	26-Mar-18	Spectrofluorometer
	27-Mar-18	Time resolved fluorescence & determination of excited state lifetime
	28-Mar-18	test
	29-Mar-18	Mahavir Jayanti
	30-Mar-18	Revised
	31-Mar-18	Assignment

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Week	Date	Topics
1	1-Apr-18	Sunday
	2-Apr-18	NMR: Basic principles
	3-Apr-18	Classical and quantum mechanical description
	4-Apr-18	Bloch equations
	5-Apr-18	do
	6-Apr-18	Spin-spin and spin-lattice relaxation times
	7-Apr-18	do
	8-Apr-18	Sunday
2	9-Apr-18	Chemical shift and coupling constant
	10-Apr-18	Experimental methods – Single coil & double coil methods
	11-Apr-18	do
	12-Apr-18	High resolution methods
	13-Apr-18	do
	14-Apr-18	Dr Ambedkar Jayanti / Vaisakhi
	15-Apr-18	Sunday
3	16-Apr-18	ESR: Basic principles
	17-Apr-18	ESR spectrometer
	18-Apr-18	do
	19-Apr-18	Nuclear interaction and hyperfine structure
	20-Apr-18	do
	21-Apr-18	problems
	22-Apr-18	Sunday
4	23-Apr-18	relaxation effects
	24-Apr-18	g-factor
	25-Apr-18	Characteristics – Free radical studies & biological applications.
	26-Apr-18	do
	27-Apr-18	problems

	28-Apr-18	Assignment
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