GDC Memorial College

Bahal (Bhiwani)-127028

NAAC Accredited Grade "B" (Second Cycle) and Recognized under the Sections 2(f) & 12B of the UGC Act, 1956

Affiliated to Ch. Bansi Lal University, Bhiwani

Lesson Plan- January to April 2026

Name - Dr. Sanjay   **Department - Physics**
Class - M.Sc. Physics   **Subject - Statistical Mechanics**
Semester- 4th   **Subject Code - 22PHY-401**

Week-1	UNIT-1
15-01-2026	the macroscopic and microscopic states
16-01-2026	postulates of equal prior proximity
Week-2	
19-01-2026	contact between statistics and thermodynamics
20-01-2026	do
21-01-2026	entropy of mixing and the gibbs paradox
22-01-2026	sackur tetrode eqn
23-01-2026	ensamble theory
Week-3	
27-Jan-26	concept of ensamble
28-Jan-26	phase space
29-Jan-26	density function
30-Jan-26	ensamble average
Week-4	
2-Feb-26	liouvilles theorem
3-Feb-26	stationary ensamble
04-Feb-26	the micro canonical ensamble
05-Feb-26	Application to the classical ideal gas; The canonical ensemble
06-Feb-26	Canonical partition function,
Week-5	
09-Feb-26	thermodynamics of a system of non interacting classical harmonic oscillator and magnetic system using canonical ensamble
10-Feb-26	Do
11-Feb-26	calculation of statistical quantites
12-Feb-26	Revision
13-Feb-26	Test
Week-6	UNIT II
16-Feb-26	the grand canonical ensamble and grand canonical partition function
17-Feb-26	calculation of statistical quantities
18-Feb-26	thermodynamics of system of classical ideal gas using grand canonical ensamble

19-Feb-26	energy and density fluctuation
20-Feb-26	quantum mechanical ensamble theory: Density matrix
Week-7	
23-Feb-26	equation of motion for density matrix
24-Feb-26	quantum mechanical ensable energy
25-Feb-26	statistics of indistinguishable particles
26-Feb-26	two types of quantum statistics Fermi Dirac and boss Einstein statisctics
27-Feb-26	Fermi Dirac and boss Einstein distribution function using microcanonical and grand canonical ensamble
Week-8	
2-Mar-26	statistics of occupation no: ideal boss gas
5-Mar-26	internal energy, equation of state
6-Mar-26	bose Einstein condensation and it's critical conditions
Week-9	
9-Mar-26	bose Einstein condensation in ultra cold atomic gases
10-Mar-26	it's detection and thermodynamics properties
11-Mar-26	Do
12-Mar-26	black body raditaion
Week-10	
16-Mar-26	Do
17-Mar-26	liquid helium
18-Mar-26	do
19-Mar-26	revision
20-Mar-26	Test
Week-11	**UNIT III**
23-Mar-26	ideal Fermi gas
24-Mar-26	internal energy
25-Mar-26	equation of state
26-Mar-26	completely degenerate Fermi gas
27-Mar-26	electron gas in metals
Week-12	
30-Mar-26	thermionic emission
31-Mar-26	cluster expansion method for a classical gas
01-Apr-26	simple cluster integrals
02-Apr-26	Mayer Ursell relations
03-Apr-26	viral expansion of the equation of state
Week-13	
06-Apr-26	van der walls equation
07-Apr-26	validity of clusterexpansion method
08-Apr-26	do
09-Apr-26	Revision
10-Apr-26	Test
Week-14	**UNIT IV**
13-Apr-26	phase transition
14-Apr-26	construction of icing model
15-Apr-26	solution of ising model in Braggs William approximator
16-Apr-26	critical exponents

17-Apr-26	do
Week-15	
20-Apr-26	Landau theory of phas etransition
21-Apr-26	scaling hypothesis
22-Apr-26	one and two dimensional icing model
23-Apr-26	thermodynamics fluctuations and their probability distributionaw
24-Apr-26	spatial correlations in a fluid
Week-16	
27-Apr-26	connection density fluctuation and spatial correlations
28-Apr-26	do
29-Apr-26	browning motion
30-Apr-26	Test

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Lesson Plan- January to April 2026

Name - Dr. Sanjay   **Department - Physics**
Class - M.Sc. Physics   **Subject - Atomic and Molecular Physics-II**
Semester- 4th   **Subject Code - 22PHY-402**

Week-1	UNIT-1
15-01-2026	Introduction to Spectroscopy
16-01-2026	Do
Week 2	
19-01-2026	Introduction to Atomica and Molecular Spectra
20-01-2026	Do
21-01-2026	The origin of X-Rays
22-01-2026	X-Ray emission spectra
23-01-2026	Do
Week-3	
27-Jan-26	Dependence of position of Emission lines onthe atomic number
28-Jan-26	Do
29-Jan-26	X-Ray emission (Doublet) spectra
30-Jan-26	Do
Week-4	
2-Feb-26	Satellites, Continuous X-ray Emission
3-Feb-26	X-Ray Absorption spectra
04-Feb-26	Do
05-Feb-26	Revision
06-Feb-26	**Unit Test**
Week-5	UNIT II
09-Feb-26	Raman Effect - quantum theory - molecular polarizability
10-Feb-26	Do
11-Feb-26	pure rotational Raman spectra of diatomic molecules
12-Feb-26	vibration Raman Spectrum of diatomic molecules
13-Feb-26	vibration rotation Raman Spectrum of diatomic molecules
Week-6	
16-Feb-26	Do
17-Feb-26	Intensity alternation in Raman spectra of diatomic molecules
18-Feb-26	application of Raman spectroscopy in the structure determination of simple molecules
19-Feb-26	Do
20-Feb-26	Do

Week-7	
23-Feb-26	**Do**
24-Feb-26	Revision
25-Feb-26	Discussion of Student's problems
26-Feb-26	Do
27-Feb-26	Test
Week-8	UNIT III
2-Mar-26	Introduction to NMR
5-Mar-26	Classical and quantum mechanical description – Bloch equations
6-Mar-26	Spin-spin and spin-lattice relaxation times
Week-9	
9-Mar-26	Chemical shift and spin-spin coupling
10-Mar-26	Applications of NMR spectroscopy
11-Mar-26	Do
12-Mar-26	Introduction to Mossbauer spectrometer
Week-10	
16-Mar-26	Isomer nuclear transition
17-Mar-26	resonance fluorescence
18-Mar-26	Mossbauer Effect, Mossbauer nuclei
19-Mar-26	Isomer shift
20-Mar-26	quadruple splitting
Week-11	
23-Mar-26	magnetic hyperfine structure
24-Mar-26	**application of Mossbauer spectroscopy**
25-Mar-26	Do
26-Mar-26	Revision
27-Mar-26	Test
Week-12	UNIT IV
30-Mar-26	Introduction ESR
31-Mar-26	ESR spectrometer
01-Apr-26	substances which can be studied by ESR
02-Apr-26	Resonance condition
03-Apr-26	Do
Week-13	
06-Apr-26	Description of ESR by Precession
07-Apr-26	Relaxation mechanisms
08-Apr-26	Features of ESR spectra (a) the g factor
09-Apr-26	(b) Fine structure
10-Apr-26	(c) hyperfine structure
Week-14	
13-Apr-26	(d) ligand hyperfine structure.
14-Apr-26	Applications of ESR
15-Apr-26	Do
16-Apr-26	Do
17-Apr-26	Revision
Week-15	
20-Apr-26	Revision

21-Apr-26	Unit Test
22-Apr-26	Previous year paper revision
23-Apr-26	Previous year paper revision
24-Apr-26	Discussion of Student's problems
Week-16	
27-Apr-26	Pre-University Exam
28-Apr-26	Result Discussion
29-Apr-26	Discussion of Student's problems
30-Apr-26	Discussion of Student's problems

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Lesson Plan- January to April 2026

Name - Dr Jyoti Kumari   **Department - Physics**

Class -   M.Sc. Physics   **Subject - Experimental Techniques**

Semester - 4th   **Subject Code - 22PHY-403C**

Week-1	UNIT-I
27-Jan-26	Experimental Tech. to observe the defect in lattice : Introduction
28-Jan-26	TEM
29-Jan-26	XRD
30-Jan-26	Do
Week-2	
2-Feb-26	experimental Tech. to observing dislocation and stacking faults : Introduction
3-Feb-26	Optical Tech.
4-Feb-26	Photoluminescence
5-Feb-26	FTIR
6-Feb-26	Raman Spectroscopy Tech.
Week-3	**UNIT-II**
9-Feb-26	Surface Analytical Techniques:- Introduction
10-Feb-26	Auger electron Spectroscopy AES
11-Feb-26	XPS (ESCA)
12-Feb-26	Do
13-Feb-26	Do
Week-4	
20-Jan-26	Do
21-Jan-26	Do
22-Jan-26	UV- Photoemission
23-Jan-26	X-RAY Absorption Techniques
24-Jan-26	SIMS
Week-5	
16-Feb-26	Rutherford Back Scattering
17-Feb-26	Do
18-Feb-26	Do
19-Feb-26	Doubts
20-Feb-26	Do
Week-6	
23-Feb-26	Test
24-Feb-26	Doubt class
25-Feb-26	Low Energy Electron Diffraction Techniques
26-Feb-26	Do

27-Feb-26	Doubts
Week-7	**UNIT-III**
10-Feb-26	Opto Electronic Devices :- Introduction
11-Feb-26	Solar Cells
12-Feb-26	Photo Diodes
14-Feb-26	Photo - Detectors
Week-8	
17-Feb-26	Introduction to LEDs
18-Feb-26	Data Intrpretation & Analysis
19-Feb-26	Do
20-Feb-26	Precision and Accuracy
21-Feb-26	Error Analysis
Week-9	
24-Feb-26	Propagation of Errors
25-Feb-26	Least Square Fitting
28-Feb-26	Linear & Non Linear Curve Fitting
Week-10	
2-Mar-26	Chi- Square Test
5-Mar-26	Amplitude Modulation
6-Mar-26	Frequency Modulation
Week-11	
9-Mar-26	Test
10-Mar-26	Doubt Session
11-Mar-26	Do
12-Mar-26	Doubts
13-Mar-26	Doubts
Week-12	
16-Mar-26	Introduction to Scanning Probe Techniques
17-Mar-26	Do
18-Mar-26	Do
19-Mar-26	Detailed Study of Spectroscopic Techniques
20-Mar-26	Doubts
Week-13	
23-Mar-26	Test
24-Mar-26	Test Discussion
25-Mar-26	Electron Spin Resonance
26-Mar-26	Do
27-Mar-26	Doubts
Week-14	
30-Mar-26	Doubts
31-Mar-26	Nuclear Magnetic Resonance
1-Apr-26	Do
2-Apr-26	Do
3-Apr-26	Doubts
Week-15	
6-Apr-26	Test
7-Apr-26	Scanning Probe Techniques
8-Apr-26	Scanning Tunneling Microscopy

9-Apr-26	Atomic Force Microscopy
10-Apr-26	Scanning Tunneling Spectroscopy
Week-16	
13-Apr-26	Revision
14-Apr-26	Revision
15-Apr-26	Revision
16-Apr-26	Revision
17-Apr-26	Revision
Week-17	
20-Apr-26	Revision
21-Apr-26	Revision
22-Apr-26	Revision
23-Apr-26	Revision
24-Apr-26	Revision
Week-18	
27-Apr-26	Revision
28-Apr-26	Revision
29-Apr-26	Revision
30-Apr-26	Revision

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Lesson Plan- January to April 2026

Class - M.Sc. Physics **Subject - Electronics-II**

Semester- 4th **Subject Code - 22PHY-404C**

Week-1	UNIT-1
15.01.2026	Negative resistance devices Tunnel diode
16.01.2026	Backward diode
Week-2	
19.01.2026	Uni-junction transistor
20.01.2026	p-n-p-n devices
21.01.2026	p-n-p-n characteristics
22.01.2026	Thyristors
23.01.2026	Silicon controlled switch
Week-3	
27.01.2026	SCS characteristics
28.01.2026	Do
29.01.2026	L addition four layer devices
30.01.2026	Unit Test
Week-4	**UNIT-II**
02.02.2026	MICROPROCESSOR 8085
03.02.2026	Do
04.02.2026	Buffer registers and Bus organized computers
05.02.2026	SAP-I
06.02.2026	Microprocessor (P) 8085 Architecture
Week-5	
09.02.2026	Memory interfacing and interfacing I/O devices
10.02.2026	Assembly language programming: Instruction classification
11.02.2026	Addressing modes, op code and operand
12.02.2026	Fetch and execute cycle
13.02.2026	Timing diagram and machine cycle
Week-6	
16.02.2026	Instruction cycle and T states
17.02.2026	Data transfer, logic and branch operations- Programming examples.
18.02.2026	Do
19.02.2026	Do
20.02.2026	Test
Week-7	**Unit III**
23.02.2026	MICROPROCESSOR 8086
24.02.2026	Architecture of microprocessor 8086
25.02.2026	Pin description for minimum and maximum modes

26.02.2026	Internal operation and addressing modes
27.02.2026	Memory interfacing examples based on addressing scheme
Week-8	
02.03.2026	Instruction format for constructing machine language codes
05.03.2026	Instruction set and directives
06.03.2026	Stacks and Procedures
Week-9	
09.03.2026	Do
10.03.2026	Macros and interrupts
11.03.2026	Do
12.03.2026	I/O interfacing and data transfer scheme
13.03.2026	Do
Week-10	
16.03.2026	Programming example
17.03.2026	Do
18.03.2026	Do
19.03.2026	Do
20.03.2026	Test
Week-11	**UNIT-IV**
23.03.2026	IC fabrication-I
24.03.2026	Do
25.03.2026	Silicon planer process
27.03.2026	Crystal growth and Wafer production
Week-12	
30.03.2026	Etching process and factors affecting the etching process
31.03.2026	HF-HNO3 system and dopant addition
01.04.2026	Ion implantation
02.04.2026	**Fick's law**
03.04.2026	Diffusivity variation
Week-13	
06.04.2026	Segregation and CVD
07.04.2026	Epitaxial and non-epitaxial films
08.04.2026	IC fabrication-II Monolithic IC technology
09.04.2026	BJT fabrication
10.04.2026	PNP transistor
Week-14	
13.04.2026	Multi-emitter schottky transistor
14.04.2026	Fabrication of FET/NMOS enhancement as well as depletion transistor
15.04.2026	Fabrication of CMOS devices
16.04.2026	**Monolithic diodes**
17.04.2026	Test
Week-15	
20.04.2026	Previous year paper revision
21.04.2026	Previous year paper revision
22.04.2026	Previous year paper revision
23.04.2026	Revision

24.04.2026	Revision
Week-16	
28.04.2026	Revision
29.04.2026	Revision
30.04.2026	Revision