Lesson Plan

Name of the Assistant/ Associate Professor... M.R. JASVINDER

Class and Section: B.Sc. I

Subject: PHYSICS (Electricity And Magnetism)

Week	Date	Topics
1	August	vector calculus- gradient, divergence, curl and physical significance, Gauss & Stoke's theorem, derivation of field from potential as gradient, Laplace & Poisson eq", Electric flux density, gauss law and application to spherical shell uniformly charged infinite plane and uniformly
2	September	Straight wire, mechanical force on charged surface, energy per unit vol. Electric vector, Polarisation vector $\vec{P}$ displacement vector $\vec{D}$, $\vec{D} = \varepsilon \vec{E}_0 + \vec{P}$ Electric susceptibility $k = 1 + \chi$. Gauss law for dielectric & energy stored. Electric current & density, $\nabla \cdot \vec{J} + \frac{\partial \rho}{\partial t} = 0$
3		Resistivity and conductivity. ohm law $\vec{J} = E\sigma$, Magnetic induction, magnetic flux, Solenoidal nature of vector field of induction, Properties of B (i) in $\nabla \cdot \vec{B} = 0$ (ii) $\nabla \times \vec{B} = \mu_0 \vec{J}$
	October	Behaviour of various substances in magnetic field. magnetic permeability,
4		Susceptibility, intensity of magnetisation, and their relations. Magnetic shell, its strength, potential of a magnetic shell at a point. Electronic theory of dia and para magnetisation curve. Hysteresis Loss, Magnetic circuits, comparison
5		of magnetic and electrical circuit. Electromagnetic Induction- calculation
	November	of self - inductance of a long solenoid. calculation of mutual inductance of two solenoids, Energy stored in a magnetic field of an inductance, growth & decay of current. Maxwell eq", Displacement current, Scalar & vector potentials, boundary conditions at interface b/w different media, wave eq" Plane wave in dielectric media, Poynting theorem and poynting vector.

Lesson Plan

ıe of the Assistant/ Associate Professor.....M.R....JASVINDER.....
s and Section:.....B.Sc....II.....
ject:.....PHYSICS.(Computer prog:..And....Thermodynamics)

k	Date	Topics
1	July.	Computer organization, Binary representation, Algorithum development, flow charts and their interpretation. FORTRAN Preliminaries, Integer and floating point arithmatic
	August	expression, input, output, Go To, Dimension arrays. Ist law of Thermodynamics.
2		Second law of Thermodynamics, Carnot
	September	Theorem, absolute scale of temp, Absolute 0, Entropy, $\frac{dQ}{T} = 0$, T-S diagram, Nernst heat law, Joule's free expansion, Porous Plug experiment. liquification of gases, Air pollution due to internal combustion Engine.
	October.	Derivation of clausius - clapeyron Heat eq^{n},
3		phase diagram, tiple point, Maxwell thermodynamical relations, Application of Maxwell relations in the derivation of relations between entropy, specific heats and thermodynamic variables.
	November	Thermodynamic functions : Internal energy (U), Helmholtz function (F), Enthalpy (H),
4		Gibbe's function (G) and the relation between them.
5		

Lesson Plan

Name of the Assistant/ Associate Professor... M.R. JASVINDER...

Class and Section: B.Sc. III .....

Subject: PHYSICS (Quantum Physics) .....

Week	Date	Topics
1	July	Failure of E.M theory, Quantum theory of radiation, photon, photoelectric effect,
	August	Einstein photoelectric eqn, compton effect Inadequancy of old quantum theory, de-Broglie hypothesis. Davisson & Germer expeeriment. G.P Thomson experiment.
		Phase velocity, group velocity, Heisenberg
2		uncertainty priciple, Time energy and angular momentum, position uncertainty
		De Broglie way, e- diffraction from slit.
	September	Derivation of time dependent Schrodinger wave eqn, eigen values, eigen functions, wave functions and significance, wave function, operator, Soln of Schrodinger
3		eqn for harmonic oscillator quantum states and excited states.
	October	Application of schrodinger eqn in the solution of the following one-dimensional problems. free particle in one-dimension box. (Soln of schrodinger wave eqn, eigen function,
4		eigen values, Quantization of energy & momentum, nodes & antinodes,
		Zero point energy
	November	(i) One dimensional potential barrier $E > V_0$ (Reflection and Transmission coefficient) (ii) one-dimensional potential
		barrier, $E > V_0$ (Reflection coefficient,
5		penetration of leakage coefficient,
		penetration depth)