

# Govt. College, Alewa (Jind)

Session: 2024-2025 (Even Semester)

## Lesson Plan

Name of the Teacher: Dr. MANJEET SINGH , ASSISTANT PROFESSOR

Subject: PHYSICS (Theory) Class: B. Sc. 2nd Sem.

Physics Paper: Electricity, Magnetism & EM Theory

Paper's Code: CC/MCC (B-24-PHY-201)

Max. Marks: 50 (External Assessment: 35 Marks, Internal Assessment: 15 Marks)

Contact Hours Per Week: 2

Sr. No.	Months	Dates	Topic
1	January 2025	15-01-2025 to 31-01-2025	Gradient of a scalar and its physical significance, Flux of a vector field, Divergence and curl of a vector and their physical significance, Electrostatic Potential, Potential as a line integral of field, Potential difference, Derivation of electric field E from potential as gradient, Derivation of Laplace and Poisson equations,
2	February 2025	01-02-2025 to 28-02-2025	Electric flux, Gauss's Law, Differential form of Gauss's law, and Mechanical force of charged surface, Energy per unit volume, Biot-Savart's law and its simple applications: Straight wire, Circular loop, current loop as magnetic dipole and its dipole moment,
3	March 2025	01-03-2025 to 31-03-2025	Ampere's circuital law and its applications to solenoid and Toroid, Force on a dipole in external field, electric current in atoms, Electron spin and magnetic moment, Types of magnetic materials, Magnetization vector(M), Magnetic Intensity (H), Magnetic susceptibility and permeability, Relation between B, H, I, Electronic theory of dia and paramagnetism, Domain theory of ferromagnetism (Langevin's theory)
4	April 2025	01-04-2025 to 30-04-2025	Electromagnetic induction, Faraday's law of electromagnetic induction, Lenz's law, Self inductance, Mutual Inductance, Energy stored in magnetic field, Derivations of Maxwell equations, Displacement current, Maxwell's equations in integral and differential form and their physical significance
5	May 2025	01-05-2025 Onwards	Electromagnetic waves, Transverse nature of electromagnetic waves, Energy transported by electromagnetic wave, Poynting vector and Poynting theorem Revision Class Test

**Dr. Manjeet Singh**

**Assistant Professor of Physics**