Physics Lesson Plan (2024-2025)

Name: MEENA   **Course Code:** CC-A2

Class: B.Sc. Physical Science (2nd sem)   Subject: Electricity and Magnetism

February	Introduction of Unit-1, Scalar and Vector fields, Differentiation of a vector, Gradient of a scalar and its physical significance, Integration of a vector (line, surface and volume integral and their physical significance), Gauss's divergence theorem and Stocks theorem. Electric field, Electric field lines, Divergence and curl of electrostatic field, Derivation of field E from potential as gradient, derivation of Laplace and Poisson equations. Test of Unit-1
March	Introduction of Gauss's Law, and its application, the mechanical force of charged surface, and energy per unit volume. Polarization, Dielectric materials, Electric displacement, Gauss's theorem in dielectrics, Electrical Susceptibility& Permittivity, and Dielectric constants. Electric flux, Gauss's Law, and its application. Assignment submission. Polarization, Dielectric materials, Electric displacement, Gauss's theorem in dielectrics, Electrical Susceptibility& Permittivity, and Dielectric constants. Test of unit-2.
April	Faraday's experiments on induction, Faraday's Law, Induced Electric field, Self and Mutual inductance, and Energy in magnetic fields. Magnetization vector (M), Magnetic Intensity (H), Magnetic Susceptibility and permeability, Relation between B, H, M, Para-, Dia- and Ferro-magnetism, B-H curve and hysteresis. Test of unit-3 Maxwell equation and its derivations, Displacement Current, vector and scalar potentials, boundary conditions at the interface between two different media, Poynting vector, and Poynting theorem.
May	Revision and doubt classes

Name: MEENA   **Course Code:** SEC-2

Class: B.Sc. Physical Science (2nd sem)   Subject: Basics of Programming.

Feburary	**Basics of Python:** The Python Interpreter; The print statement; Variables and Assignments; Strings; Comments and Docstrings; Debugging; Input; Data types and Data conversion.Test of unit-1.**Operations:** Lists and List Operations; Comparison Operations; Logical Operations; Practice Programs: Mathematical operations, Convert Celsius to Fahrenheit, Solve Quadratic Equation.
March	**Control Flow:** Sequencing, Iteration and Selection; For and While Loops; Conditional Statements: if, if-else, elif; Break and Continue Statements; Ranges; Practice Programs: Simple Harmonic Motion, Motion of a Ball Under Gravity, Projectile Motion. Test of unit-2 and Assignment submission
April	**Functions:** Built-in Functions, List and String Functions, User-defined function, Dictionaries and Dictionary Functions, Tuples, Sets, List Comprehensions; Practice Programs: Make a Simple Calculator, Ohm's Law and Power Calculation,Test of unit-3.
May	Revision