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| **LESSON PLAN SESSION 2023-2024**  **SUBJECT- Paper II- PHY 102 : ELECTRICITY AND MAGNETISM**  **Sem.1st** | | | |
| **S.No** | **WEEK** | **TOPIC** | **REMARK** |
| 1 | 24.07.2023-29.07.2023 | **Unit I**  **Mathematical Background :** Scalars and Vectors, dot and cross product, Triple vector product, Scalar and Vector fields |  |
| 2 | 01.08.2023-05.08.2023 | Differentiation of a vector, Gradient of a scalar and its physical significance, Integration of a vector, Gauss’s divergence theorem and Stocks theorem. |  |
| 3 | 07.08.2023-12.08.2023 | **Unit I**  **Electrostatic Field** Derivation of field E from potential as gradient, derivation of Laplace and Poisson equations |  |
| 4 | 14.08.2023-19.08.2023 | Electric flux, Gauss’s Law and its application to  spherical shell, uniformly charged infinite plane and uniformity charged straight wire, mechanical force of charged surface, Energy per unit volume |  |
| 5 | 21.08.2023-26.08.2023 | **Unit II**  **Magnetostatistics :** Magnetic Induction, magetic flux, solenoidal nature of Vector field of induction. Properties of B.  . Cycle of Magnetisation |  |
| 6 | 28.08.2023-31.08.2023 | Electronic theory of para magnetism (Langevin’s theory). Domain theory of ferromagnetism |  |
| 7 | 04.09.2023-09.09.2023 | Electronic theory of dia magnetism (Langevin’s theory) |  |
| 8 | 11.09.2023-16.09.2023 | Magnetisation – Hysteresis-Energy dissipation, Hysteresis loss |  |
| 9 | 18.09.2023-23.09.2023 | Hysteresis curve |  |
| 10 | 25.09.2023-30.09.2023 | **Unit III**  **Electromagnetic Theory**  Maxwell equation and their derivations |  |
| 11 | 02.10.2023-07.10.2023 | Maxwell equation and their derivations |  |
| 12 | 09.10.2023-14.10.2023 | Displacement Current. Vector and scalar potentials |  |
| 13 | 16.10.2023-21.10.2023 | Poynting vector and Poynting theorem. |  |
| 14 | 23.10.2023-28.10.2023 | boundary conditions at interface between two different media, |  |
| **S.No** | **WEEK** | **TOPIC** | **REMARK** |
| 15 | 01.11.2023-04.11.2023 | boundary conditions at interface between two  different media, |  |
| 16 | 06.11.2023-09.11.2023 | Propagation of electromagnetic wave (Basic idea, no derivation). |  |
| 17 | 10.11.2023-16.11.2023 | Diwali Break |  |
| 18 | 20.11.2023-24.11.2023 | Revision |  |
| 19 | 25.11.2023-23.12.2023 | Examinations |  |
| 20 | 24.12.2023-31.12.2023 | Winter Vacation |  |