

Topic Name: Electromagnetic Waves, Prof Deepa Venkatesh, IITM

Relevant Course Name: Electromagnetic Theory

Relevant Department: Electrical

Pre Requisite- Understanding of Line integral, surface integral, volume integral, gradient, divergence, curl, electric field and magnetic field.

Outline:

Electromagnetics

Review of Faraday's Law, Equation of continuity, Lenz Law, Ampere's Law, Gauss Law (in both electric and magnetic field), Stokes theorem, Divergence Theorem. (1 Hour)

Review of Ampere's Law with Displacement current.(1 Hour)

Boundary conditions for Electric Field, Magnetic Field – dielectric boundaries, conductor boundaries.(1 Hour)

Application cases for boundary conditions. (1 Hour)

Derivation of electromagnetic wave equations. (1 Hour)

Discussion of Tutorial Problems on the above topics. (1 Hour)