SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Mathematics)
Semester: IV
Syllabus with Effect from: November-2013

Paper Code: PS04EMTH19	**Total Credit: 4**
Title Of Paper: Electromagnetic Theory - II	

Unit	Description in detail	Weighting (%)
I	Energy relations in quasi-stationary systems, forces on current systems. Magnetic force, expression for electromagnetic energy, momentum balance.	25%
II	The wave equation and plane waves, radiation pressure, plane wave in moving media, reflection and refraction at a plane boundary.	25%
III	Inhomogeneous wave equation, solution by Fourier analysis, the radiation fields, Hertz potential, electric dipole radiation.	25%
IV	Covariant formulation of electrodynamics, Lienard - Wiechert potentials and fields of a uniformly moving electron, radiation from an accelerated charge.	25%

Basic Text & Reference Books:-

- W.K.H. Panofsky and M. Phillips, Classical electricity and magnetism, Addison-Wesley.
- J.D. Jackson, Classical electrodynamics, Wiley Eastern.
- W. Hauser, Introduction to principles of electromagnetism, Addison Wesley.
- B.G. Levich, Theoretical Physics Vol.-I.
- D.J. Griffiths, Introduction to electrodynamics (3rd Edition), Prentice-Hall of India.