

Semester	JAN 2022
Open to semester	14,22
Course code	PH6222
Course title	Electrodynamics II
Credits	/2
Course Coordinator & participating faculty (if any)	Rajeev Bhalerao
Nature of Course	Lectures and Tutorials
Pre-requisites	Electrodynamics I, Basics of special relativity
Objectives (goals, type of students for whom useful, outcome etc)	This is a modular course with 18 lectures, meant mainly for iPhD and PhD students.
Course contents (details of topics /sections with no. of lectures for each)	<p>(1) Radiation, Electric dipole radiation, Magnetic dipole radiation, Antennas (3 lectures)</p> <p>(2) Topics in special relativity, 4-vectors and tensors, Gauss's and Stokes' theorems in 4D, Relativistic kinematics and dynamics, Decay of particle, Two-body scattering (4 lectures)</p> <p>(3) Relativistic electrodynamics, The field tensor, Electrodynamics in tensor notation (4 lectures)</p> <p>(4) Lagrangian formalism: Lagrangian, Hamiltonian, Relativistic particle in an EM field (4 lectures)</p> <p>(5) Cherenkov radiation, Bremsstrahlung, Synchrotron radiation (3 lectures)</p>
Evaluation /assessment	<p>End-Sem Examination-60%</p> <p>Mid-Sem Examination-40%</p> <p>Others--%</p>
Suggested readings (with full list of authors, publisher, year, edn etc.)	<p>Books:</p> <p>(1) Introduction to Electrodynamics by D.J. Griffiths</p> <p>(2) The Classical Theory of Fields by L.D. Landau and E.M. Lifshitz</p> <p>(3) Classical Electrodynamics by J.D. Jackson</p>