

Semester	AUG 2022
Open to semester	5,11,21
Course code	PH3114/PH6114
Course title	Electrodynamics-I*
Credits	4 /4
Course Coordinator & participating faculty (if any)	Ashish Arora
Nature of Course	Lectures and Tutorials
Pre-requisites	Vector calculus, introductory electricity and magnetism
Objectives (goals, type of students for whom useful, outcome etc)	To provide a basic understanding of electric and magnetic fields in matter, electromagnetic waves in vacuum and in matter and the electromagnetic field equations in a covariant way.
Course contents (details of topics /sections with no. of lectures for each)	Review of electro- and magnetostatics, Maxwell's equations, conservation laws, electromagnetic waves in vacuum and in matter, guided waves, dipole radiation, scalar and vector potentials, retarded potentials, gauge transformations, relativistic electrodynamics, electromagnetic field tensor, covariant formulation of Maxwell's equations.
Evaluation /assessment	End-Sem Examination-40% Mid-Sem Examination-30% Others-30%
Suggested readings (with full list of authors, publisher, year, edn etc.)	<ol style="list-style-type: none"> 1. Introduction to Electrodynamics: D.J. Griffiths (2012) Pearson Education 2. Feynman Lectures on Physics: R.P. Feynman, R.B. Leighton and M. Sands (2011) The Millenium edition, Vol 2, Basic Books 3. Electrodynamics of Continuous Media: L.D. Landau and E.M. Lifshitz (2007) 3rd edition, Butterworth-Heinemann