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Nota di contenuto	Part I Electromagnetic Theory: Maxwell's Equations -- Radiation -- Fundamental Theorems -- Wave Harmonics And Guided Waves -- Part II Scattering Theory: Radar -- Canonical Scattering Problems -- Approximate Methods -- Integral Equation Method -- Method of Moments -- Periodic Structures -- Inverse Scattering -- Appendices: Vector Analysis -- Vector Calculus -- Bessel Functions.
Sommario/riassunto	This book present the lecture notes used in two courses that the late Professor Kasra Barkeshli had offered at Sharif University of Technology, namely, Advanced Electromagnetics and Scattering Theory. The prerequisite for the sequence is vector calculus and electromagnetic fields and waves. Some familiarity with Green's functions and integral equations is desirable but not necessary. The book provides a brief but concise introduction to classical topics in the field. It is divided into three parts including annexes. Part I covers principle of electromagnetic theory. The discussion starts with a review of the Maxwell's equations in differential and integral forms and basic

boundary conditions. The solution of inhomogeneous wave equation and various field representations including Lorentz's potential functions and the Green's function method are discussed next. The solution of Helmholtz equation and wave harmonics follow. Next, the book presents plane wave propagation in dielectric and lossy media and various wave velocities. This part concludes with a general discussion of planar and circular waveguides. Part II presents basic concepts of electromagnetic scattering theory. After a brief discussion of radar equation and scattering cross section, the author reviews the canonical problems in scattering. These include the cylinder, the wedge and the sphere. The edge condition for the electromagnetic fields in the vicinity of geometric discontinuities are discussed. The author also presents the low frequency Rayleigh and Born approximations. The integral equation method for the formulation of scattering problems is presented next, followed by an introduction to scattering from periodic structures. .