

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
PHY-408	PARTICLE PHYSICS-II	3	VII
Year	Discipline		
4	Physics		

Course Outlines:

The Klein-Gordan Equation: Non relativistic quantum mechanics, Lorentz covariance and 4 vector notation, the Klein Gordon equation, the Feynman-Stuckelberg interpretation of $E < 0$ solutions, non relativistic perturbation theory (brief review), rules for scattering amplitudes in the Feynman-Stukelberg approach.

The Dirac Equation: Covariant form of the Dirac Equation, Dirac γ -matrices, conserved current and the adjoint equation, free particle spinors, anti particles, normalization of spinors and the completeness relations, bilinear covariants, zero mass fermion, the two-component neutrino.

Books Recommended:

1. *Relativistic Quantum Mechanics* by Bjorken, J. D. and Drell, S. D., McGraw-Hill, (1964) International Edition reprinted in (1995).
2. *Quarks and Leptons* by Halzen, F. and Martin, A.D., John-Wiley and Sons (1984).
3. *Quantum Mechanics* by Riazuddin and Fayyazuddin, World Scientific, (1990).
4. *Introduction to Elementary Particles* by Griffiths, D., John-Wiley and Sons, (1987).