

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
PHY-407	PARTICLE PHYSICS-I	3	VII
Year	Discipline		
4	Physics		

Course Outlines:

Particle Classification: Quantum numbers, leptons, hadrons, baryons, mesons, quarks.

The Fundamental Interactions: The electromagnetic coupling, the strong coupling, the weak coupling.

Symmetry Transformation and Conservation Laws: Translation in space, rotation in space, the group SU (2), systems of identical particles, parity, isospin charge conjugation, time reversal, G parity, CPT theorem.

The Electromagnetic Field: Gauge invariance and Maxwell's equations, polarization and photon spin, angular momentum, parity and C parity of the photon.

Books Recommended:

1. *Nuclear and Particle Physics* by Burcham, E. E. and Jobes, M., Longman, (1995).
2. *Introduction to Nuclear and Particle Physics* by Das, A. and Ferbel, T., John Wiley and Sons, (1994).
3. *Concepts of Particle Physics* by Gottfried, K. and Weisskopf, F., Vol. 1, Oxford University Press, (1986).
4. *Introduction of elementary Particles* by Griffiths, D., John Wiley and Sons, (1987).
5. *Nuclear and Particle Physics* by Williams, W.S.C., Oxford University Press, (1995).
6. *A Modern Introduction to Particle Physics* by Fayyazuddin and Riazuddin, World Scientific, (1992)
7. *Quarks and Leptons* by Halzen F and Martin A.D., Wiley, (1984).