SUBJECT NO-PH41019, SUBJECT NAME- Nuclear and Particle Physics -II

LTP- 3-0-0,CRD- 3

SYLLABUS :-

The Deuteron problem, Shell model and magic numbers. Collective models. Compound nucleus formation and decay. Nuclear scattering processes, neutron - proton Scattering at low energies, proton - proton scattering at low energies and general nature of nuclear force. Particle Phenomenology: elementary particles and interactions: fundamental interactions, deep inelastic scattering and quark jets, classification of particles: leptons and quarks and gauge bosons. Quark model: meson and baryon octets and decuplet. Gell-Mann Okubo mass formula, baryon isospin and baryon magnetic moments in the quark model. Elementary ideas of QED. Tree-level processes, Mandelstam variables and plot, Compton scattering and Bhabha scattering. Parity violation in weak interaction, Kaon+ decay. The V-A interaction, weak current, muon decay, pion deacy, Cabbibo angle, CP violation in neutral Kaon decay, Kaon oscillations.