In this thesis, we obtain the complete algebraic structure of a nite semisim-ple group algebra of a nite metabelian group, using the subgroup structure of the group. The main results of the thesis are illustrated with explicit computation of primitive central idempotents and the Wedderburn decomposition of a nite metacyclic group algebra. The automorphism group of semisimple group algebra of a nite metabelian group has also been obtained