3. OBJECTIVES:

Preparation of nanomaterials can be divided into two broad spectrum top down and bottom up, each of which has two directions physical and wet chemical. The most important criteria for preparation of nanoparticles are: Proper size with narrow size distribution well dispersed particles, equiaxial shape of particles, high purity, and homogeneous composition. Most of the wet chemical methods have common feature that the mixing of components takes place at the atomic or molecular scale. Some of the non-conventional processes are: Sol-gel method, Chemical Co-precipitation method, Precursor method, combustion method, Spray drying, Microwave Hydrothermal precipitation, Self combustion synthesis, Glass crystallization method, Mechanical alloying etc are used to fabricate the nanoparticles.

1. Optimization of Zn concentration in (NiCuZn) Fe₂O₄ ferrite.
2. Study of magnetostriction constant.
3. Study of structural and electromagnetic properties of the NiCuZn ferrites.
4. Study the effect of sintering on densification and electromagnetic properties in optimized NiCuZn ferrites.