CHAPTER 3
AIM AND SCOPE OF INVESTIGATION

3.1 GENERAL

Steatite is considered as the softest mineral which can have a promising future in construction industry as partial or full substitute of cement. From the earlier literature it is evident that the high performance concrete can be produced effectively with natural admixtures. These natural admixtures can be used as replacement to cement, which can improve the performance of concrete. But not much research has been carried out concerning the incorporation of steatite in concrete or High Performance Concrete and RCC members. Therefore this research was performed to create specific experimental data on the potential use of Ultra Fine Natural Steatite Powder (UFNSP) in high performance concrete (HPC) and RCC members.

3.2 AIM

The main aim of this research work is to investigate effective replacement of cement by ultra fine natural steatite powder (UFNSP) in high performance concrete (HPC) and RCC structural element. To achieve this, an extensive study had been carried out to investigate the following using ultra fine natural steatite powder.

1. To find the optimum proportion of UFNSP that can be used as a replacement material for cement.

2. To investigate the workability of fresh concrete with UFNSP as replacement to cement.
3. To evaluate compressive and tensile strength of UFNSP admixed HPC specimens.
4. To investigate the durability characteristics of UFNSP admixed HPC.
5. To study about the micro structural behavior and chemical reactions of UFNSP admixed HPC.
6. To investigate flexural strength of UFNSP admixed HPC structural members (RCC Beams).

3.3 SCOPE

The technology development of concrete and demand for high strength construction materials give momentum to the development of High Performance Concrete (HPC). Current HPC preparation methods require costly materials and relatively sophisticated technology. Mineral admixtures were widely used as cement replacement materials in high performance concrete (HPC). While the effect of mineral admixtures on rheological properties and mechanical behavior of HPC had been investigated by many researchers, further research is needed to identify more minerals or natural admixture which can be used in production of high performance concrete. Moreover, the effect of steatite on properties of concrete and HPC has not been well established yet. To overcome these weaknesses, this research work focused on the preparation of HPC with common technology and ordinary raw materials. Influences of ultra fine natural steatite powder replacement on properties of high performance concrete were studied. Therefore in this investigation, effect of ultra fine natural steatite powder on the properties of fresh and hardened concrete were examined and reported.