CHAPTER: 4 - WORK PLAN AND METHODOLOGY

4.1 Work Plan

1. Literature review.

2. Analysis of different materials for the suitability to prepare concrete.

3. Cube casting, curing and testing to find various mechanical property and C-S-H gel structure.

4. Result analysis, comparison of results and conclusion.

4.2 Methodology:

1) Analysis of material for the suitability for making concrete.
   - **For sand**: sieve analysis test, specific gravity test, inorganic impurities test,
   - **For aggregate**: sieve analysis, impact value test, flakiness index test,
     elongation index test, water absorption test, crushing value test, abrasion value test
   - **For Cement**: fineness test, initial setting time test, final setting time test,
     soundness test, consistency test

2) Mix design of nano concrete as per Indian standard.

3) Casting of ISI cubes of size 150x150x150 mm by replacing cement with nano materials by 5%, 10%, 15% etc.

4) Curing of cubes in water tank.

5) Weight of cubes, testing of cubes to find/analysis of various property of concrete.

6) Tests for the study of nano structure of C-S-H reaction with the help of scanning electron microscope (SEM) etc.

7) Environmental impact assessment.

8) Analysis of results and conclusion.