

## **Tentative Topic: Experimental Investigation on Various Fibers Performances in Concrete without Reinforcement**

### **Introduction:**

Concrete is a Composite material and widely used in all over the world. The most famous advantage of concrete is its high compressive strength, but there are many defects for concrete materials, such as low anti cracking performance, bad toughness and low tensile strength. During the failure of the concrete structure under the action of load, the energy consumed is very limited, so that micro cracks are developing with deferent size scale will come into being. In order to overcome the defects of concrete material, many researchers have conducted a lot of investigation to improve the properties of concrete, especially the toughness of concrete. It has been proved that the using of fibers can improve the mechanical properties and durability of concrete.

Plain unreinforced concrete is a brittle material with a low tensile strength and low strain capacity, when they are exposed to heavy loads the cracks is appearing and they collapse. It has been recognized that the addition of small, closely spaced and uniformly dispersed fibers to concrete would act as crack arrester and would substantially improves its static and dynamic properties. Fiber-reinforced concrete (FRC) is concrete containing fibrous material which increases its structural integrity. It contains short discrete fibers that are uniformly distributed and randomly oriented. The volume of fibers, length of fiber and diameter of fiber has been found independently to improve the strength of composites.

There are three kinds of actions of fibers on concrete, which include anti cracking, reinforcing, and toughening. Fibers include steel fibers, glass fibers, synthetic fibers and natural fibers – each of which lends varying properties to the concrete. In addition, the character of fiber-reinforced concrete changes with varying concretes, fiber materials, geometries, distribution, orientation, and densities.

## **Objective**

The research aims to provide information on the properties and applications of the more commonly available fibers and their uses to produce concrete with certain characteristics. A research work is to investigate experimentally in various fibers are mixed with concrete without reinforcement in different mix ratio and identify the high performance fibers concrete with varying loads. Comparative analyze all the fibers performance in concrete and finally to identify the best performance of fiber used in Civil engineering works.

## **Reference**

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