H.K.E SOCIETY'S

POOJYA DODDAPPA APPA COLLEGE OF ENGINEERING

GULBARGA – 585 102

(An Autonomous Institution Affiliated to VTU Belgaum, and Approved By AICTE)

A

PROJECT REPORT

ON

"STUDY ON PROPERTIES OF GEOPOLYMER CONCRETE USING WASTE MATERIALS (GRANITE CHIPS AS COARSE AGGREGATE AND GRANITE DUST AS FINE AGGREGATE)"

(SPONSORED BY KSCST, BANGALORE)

Submitted to the

Poojya Doddappa Appa College of Engineering, Gulbarga

(An Autonomous Institution, Affiliated to VTU Belgaum, and Approved by AICTE)

In partial fulfillment of the Requirement for the award of the Degree of

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In

Civil Engineering

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ABSTRACT

Due to presence of more number of granite quarry lot of granite chips and granite dust are being produced everyday and it is thought to be waste granites.Identifying the use for this waste as a important economic benefits, at the same time it provides an alternative aggregates source.

In the recent time ,the importance of use of fly ash in concrete has grown so much that it has almost become a common ingredient in concrete. Extensive research has been done all over the world on the benefits that could be accured in the utilisation of fly ash as a supplementary cementatious material.

In this project work the mix proportions for different alkaline liquid to fly ash ratios are developed with five NaOH solutions (8M,10M,12M,14M,16M). The experimental work planned in this project consist casting of standard size cubes according to Indian Standards. To determine the compressive strength of low calcium fly ash based geopolymerconcrete, specimens of size 15cm x 15cm x 15cm cube were prepared.

After two days of casting, specimens were demould and heat cured at 70^0C for trial casting. After that it was observed that this demoulding period was not sufficient for proper shape and acceptable compressive strength. From the experimental investigations carried out as above, it is recommended that low calcium fly ash based geopolymer concrete is environmental friendly. Maximum compressive strength attained for alkaline liquid to fly ash ratio 0.45 and 16MNaOH mix was 42.73 MPa.