

Report on Mini Project
Fly-ash Based Geopolymer Concrete

Submitted by

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DEPARTMENT OF CIVIL ENGINEERING
SCHOOL OF STUDIES OF ENGINEERING & TECHNOLOGY
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CERTIFICATE

It is certified that the mini project entitled "FLY-ASH BASED GEOPOLYMER CONCRETE" submitted by Jay prakash Kumar, Rishabh Kumar, Rishi kesh harsh and Ashish Nagesh in partial fulfillment of the requirements of the award of the degree of Bachelor of Technology in Civil Engineering, School of studies of Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur, is carried out by them in the Department of Civil Engineering during session 2023-24 under supervision and guidance of Dr. Nikhil Kumar Verma, Assistant Professor, Department of Civil Engineering, School of Studies of Engineering & Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur CG.

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(EXTERNAL EXAMINER-1)

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ABSTRACT

The rapid growth in industrial development has led to a significant increase in cement consumption, contributing to around 1.35 billion tons of CO₂ emissions annually, about 7% of global man-made emissions. Concurrently, thermal power plants produce vast amounts of unutilized fly-ash, creating a solid waste management challenge. Geopolymer technology, which uses fly-ash activated by alkaline activators, offers a promising solution by reducing CO₂ emissions and serving as a sustainable alternative to Portland cement in concrete. This report significant research on fly-ash based geopolymer concrete (GPC) and explores ways to enhance its performance under varying conditions.

KEYWORDS alkaline solution, ambient temperature, compressive strength, fly-ash, geopolymer concrete (GPC).