# INVESTIGATION ON MECHANICAL PROPERTIES OF M20 GRADE CONCRETE WITH PARTIAL REPLACEMENT OF CRUMB RUBBER& M SAND FOR FINE AGGREGATE AND FLY ASH FOR CEMENT

Major project report submitted in partial fulfillment of the requirements for the award of the degree of Master of Technology in

# STRUCTURAL ENGINEERING

Academic Year 2018-2020

Submitted By

### M.SRI HARSHA VARMA 18241 D2011

Under the Esteemed Guidance Of

Dr. G.V.V. SATYANARAYANA M.Tech., Ph.D



**Department of Civil Engineering** 

## GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Autonomous under JNTUH)
Bachupally, Kukatpally,
Hyderabad

December 2020

#### **CERTIFICATE**

This is to certify that the Project report entitled "INVESTIGATION ON MECHANICAL PROPERTIES OF M20 GRADE CONCRETE WITH PARTIAL REPLACEMENT OF CRUMB RUBBER& M SAND FOR FINE AGGREGATE AND FLY ASH FOR CEMENT" submitted by M.Sri harsha varma (18241D2011) at Gokaraju Rangaraju Institute Of Engineering And Technology, Hyderabad, in partial fulfillment for the award of the degree of Master of Technology, (M.Tech) in Structural Engineering is a bonafide record of project work carried out by her under my guidance and supervision. The results embodied in this project report have not been submitted to any other University or Institute for the award of any Degree or Diploma.

**Project Guide** 

Ytoevis

Dr. G.V.V. Satyanarayana Department of Civil Engineering GRIET, Hyderabad Telangana-500090 Head of the Department

Dr. V. Mallikarjuna Reddy
Department of Civil Engineering

GRIET, Hyderabad Telangana-500090

**External Examiner**