

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JNANA SANGAMA”, MACHHE, BELAGAVI – 590018, KARNATAKA



2021-202

Project Report on

## “STABILIZATION OF EXPANSIVE SOIL USING AGRICULTURAL WASTE SUCH AS ARECANUT & COCONUT SHELL ASH”

Submitted in partial fulfillment of the requirement for the award of degree

BACHELOR OF ENGINEERING  
IN  
CIVIL ENGINEERING

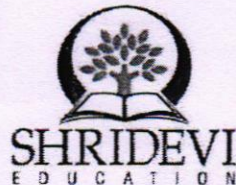
**Submitted by:**

KARTHIK G	1SV18CV019
PAVAN NAG M A	1SV18CV026
CHINTHANA B S	1SV19CV404
DHANUSHREE M N	1SV19CV407

**Under the guidance of:**

Dr. G MAHESH KUMAR  
Professor and Head  
Dept. Of Civil Engineering  
SIET, TUMAKURU

PRINCIPAL  
SIET, TUMAKURU



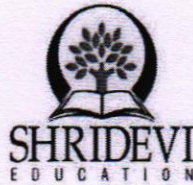
SHRIDEVI  
EDUCATION  
DEPARTMENT OF CIVIL ENGINEERING  
SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY  
(Affiliated to Visvesvaraya Technological University, Belagavi)  
Sira Road, Tumakuru – 572106 KARNATAKA



# SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An ISO 9001:2000 Certified Institution)

Sira Road, Tumakuru – 572106.



## DEPARTMENT OF CIVIL ENGINEERING

### CERTIFICATE

Certified that a project report on entitled “STABILIZATION OF EXPANSIVE SOIL USING AGRICULTURAL WASTE SUCH AS ARECANUT & COCONUT SHELL ASH” has been successfully carried out by **KARTHIK G (1SV18CV019)**, **PAVAN NAG M A (1SV18CV026)**, **CHINTHANA B S (1SV19CV404)**, **DHANUSHREE M N (1SV19CV407)**, students of Shridevi Institute of Engineering and Technology, Tumakuru -572106, in partial fulfillment of project for the award of Bachelor of Engineering in Civil Engineering of the Visvesvaraya Technological University, Jnana Sangama, Belagavi -590018 during the academic year 2021-2022. It is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the Department library. The report has been approved as it satisfies the academic requirement in respect of project on current topic prescribed for B.E Degree.

Signature of the Project Guide  
**Dr. G Mahesh Kumar**  
Professor and Head  
Dept. of Civil Engineering  
SIET, Tumakuru

Signature of the H O D  
**Dr. G Mahesh Kumar**  
Professor and Head  
Dept. of Civil Engineering  
SIET, Tumakuru

PRINCIPAL  
SHRIDEVI INSTITUTE OF  
ENGINEERING AND TECHNOLOGY  
Signature of the Principal  
**Dr. Narendra Viswanath**  
Principal  
SIET, Tumakuru.

### External Viva

Name of the Examiners

1 .....

2 .....

Signature with date

.....

.....



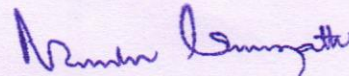
## ABSTRACT

Pile foundation consists of pile that are dug into the soil till a layer of stable soil is reached. Pile foundation transfer building loads to the bearing ground with the greater bearing capacity. Pile foundation is that of deep foundation in which the load taken to low level by means of vertical members which may be timber, concrete or steel.

Pile foundation are useful in regions with unstable upper soil that may erode, or for large structure. Pile foundation are often required to resist lateral loading. Lateral's load comes from a source I.e., earthquakes.

Project report contains introduction, problem definition and design. It also contains literature review of project. It includes the required test for designing the pile foundation for multistorey building in homogeneous soil viz. soil properties test. It contains the design of pile and pile cap by using of manual or conventional method and compare it with software results i.e., STADD foundation result.

The design is done by manually method by using IS 2911, IS 456 CODES and software STADD foundation. Analysis of maximum column load and moment by using of E-tabs and drawing and detailing is done by using of AUTOCADD.



PRINCIPAL  
SIET., TUMAKURU.