# "EXPERIMENTAL INVESTIGATION AND COMPARATIVE STUDIES OF COIR AND JUTE GEOTEXTILE IN BLACK COTTON SOIL FOR SUBGRADE"

## PROJECT REPORT

Submitted by


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In partial fulfilment of the requirements for the degree of

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI-590018.

Under the Guidance of

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# CERTIFICATE

Certified that the project work entitled "**Experimental investigation and comparative studies of coir and jute geotextile in black cotton soil for subgrade**" has been successfully completed by

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The bonafide students of Department of Civil Engineering ,Alva's Institute of Engineering and Technology in partial fulfilment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI** during the year 2021.It is certifiedthat all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of seminar work prescribed for the Bachelor of Engineering Degree.

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# ABSTRACT

Soil having poor bearing and shearing strength need stabilization to make it suitable for construction purpose. In this study coir fibre and jute Geotextile is used as natural fibre for stabilization of soil. Stabilization using natural fibre is a cost-effective and eco-friendly approach to improve properties of soil. Chemical-based or synthetic fibres harm our environment so, the use of natural fibre is an initiative to maintain balance in nature.

In This study reveals around the reinforcement of soil by coir fibre and jute geotextile and comparing engineering properties before and after stabilization. The study is carried out to evaluate the effects of coir fibre and Jute geotextile on shear strength of soil by carrying out direct shear test and unconfined compression test on two different samples. Disturbed samples are collected from different sites a. In laboratory, testing of liquid limit, specific gravity along with grain size distribution is carried out for the classification of soil. For different percentage of coir fibre the Proctor Compaction test was carried out. Further at optimum moisture content (OMC), direct shear test and unconfined compression test are carried out for different fractions of coir fibre and jute geotextile.

The experimental results with and without coir fibre and jute geotextile and between coir fibre and jute geotextile reinforcement are compared to obtain optimum quantity of fibre reinforcement and the better reinforcement material required to stabilize the subgrade of Black cotton soil along with the inference about effect on bearing capacity and shear strength.