

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,
BELAGAVI-590018**



A

PROJECT REPORT

ON

**“CHARACTERIZATION OF VIBRATION AND
MECHANICAL PROPERTIES OF SISAL FIBER
REINFORCED POLYMER COMPOSITES”**

(Sponsored by KSCST Proposal Number 38S0706)

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

Degree of

Bachelor of Engineering

in

MECHANICAL ENGINEERING

by

PROJECT ASSOCIATES

**Name: Akash G Girimath
USN: 2KE11ME004**

**Name: Sharath Rao
USN: 2KE11ME045**

**Name: Dhanush C Patil
USN: 2KE11ME011**

**Name: Ashish J Vinekar
USN: 2KE11ME007**

Under the Guidance of
Mr. Manjunath G. Prasad
Assistant Professor



Department of Mechanical Engineering
K.L.E. Institute of Technology, Hubballi-30
2014-2015



ABSTRACT

The word composite means that two or more materials are combined on macroscopic scale to form a useful third material. Government regulations and a growing environmental awareness throughout the world have triggered a paradigm shift towards designing materials compatible with the environment. The use of bio fibers derived from annually renewable resources as reinforcing fibers in both thermoplastic and thermoset disposability and raw material utilization. The advantages of natural fiber over traditional reinforcing materials such as glass fibers, talc and mica are: acceptable specific strength properties, low cost, low density, high toughness, good thermal properties, biodegradability, etc. it is encouraging to note that natural fibers such as jute, coir, banana fiber, sisal etc are abundantly available but are not constantly utilized most of the scientific data on the structure and properties of various fibers are now well known, so that suitable applications for them can be found. Incorporation of these fibers in polymers can be one such use. Fiber reinforced plastic have been very popular due to their flexibility, their lightness and the ease of fabrication of complicated shapes with economic saving in contrast to fiber reinforced metal alloys in addition these composites can easily suit for conventional minerals such as wood, glass fiber reinforced plastics in several areas such as the building industries transportation and consumer goods these have however a number of limitations including cost factor and their performance over a long time duration.

The work deals with the utilization of sisal fiber as reinforcement in polymers. The objective of the work is to compute the vibration characteristics and mechanical properties of the sisal fiber reinforced epoxy composite.

The work has following phases:

1. Preparation of composite plates with different weight percentages of sisal fibers and polymer resin.
2. Preparation of standard specimens as per ASTM standards.
3. Conduct different test to determine vibration properties and mechanical properties.