



**D.N.R. COLLEGE OF ENGINEERING & TECHNOLOGY**  
Balusumudi, Bhimavaram-534202

**Academic Year 2019-20**

**Number of Books and Chapters in Edited Volumes/Books Published and Papers Published In  
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<b>Sl. No.</b>	<b>Name of the Faculty Author</b>	<b>Title of the Paper</b>	<b>National/ International Conference</b>	<b>Name Of The Conference</b>
1.	M. Thambi Babu	Study of Mechanical Properties of Glass-Jute-Fiber-Reinforced Hybrid Composites by Varying Its Fiber Orientation and Resins	International	ICLIET: International Conference on Latest Innovations in Materials Engineering and Technology
2.	R. Ramya Swetha	Experimental Studies of acid attack on M40 grade of SCC made with SCBA	International	ICCMSSSD



## Study of Mechanical Properties of Glass–Jute-Fiber-Reinforced Hybrid Composites by Varying Its Fiber Orientation and Resins

R. Hari Kishore , M. Thambi Babu , M. Pandu Ranga Rao & G. Sasidhar

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### Abstract

The present study deals with the fabrication and investigation of mechanical properties of new class FRP (glass–jute reinforced fibers). Among various fibers, jute is the most widely used natural fiber due to its advantages like easy availability, low density, and satisfactory mechanical properties. Composite materials having different mechanical properties are based on its fiber content, orientation of fiber, types of resins, length, etc. To know the effects of fibers for different conditions, we are taking two attempts those are orientation of fiber and type of resin. We study those two attempts on how they can affect the mechanical behavior of glass–jute-fiber-reinforced hybrid composites. In this study, three reinforcement materials, namely general purpose, epoxy, and isophthalic resin. For the orientation of fiber, we are taking three angular orientations  $0^\circ$ ,  $30^\circ$ , and  $60^\circ$ , respectively. For optimizing the results, we are taking these three angular positions, and hand layup technique is used to fabricate the composite. The fiber content is varied on the basis of volume fraction. The first sample was made with  $0^\circ$  orientation by varying the three different resins, and similarly for  $30^\circ$  and  $60^\circ$ , fiber orientations are also made. And the mechanical properties like tensile and flexural strengths were investigated for the samples. The specimen fabricated by using ISO resin with  $0^\circ$  fiber orientation is having high tensile strength value, and the specimen fabricated by using ISO resin with  $60^\circ$  fiber orientation is having high flexural strength.

### Keywords

Fiber-reinforced plastics (FRP)

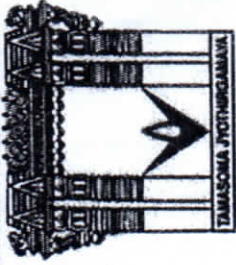
Glass fiber

Jute fiber

Epoxy and ISO resins

*H. Hari Kishore*  
PRINCIPAL  
D.N.R. College of Engg. & Tech.  
BHIMAVARAM-534 202.

# International Conference on Construction Materials and Smart Structures for Sustainable Development



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## Certificate of Appreciation

This is to certify that *Dr./Mr./Ms. ....R. Ramya... Swetha.....* has presented a paper titled "*Experimental studies... of acid attack... on... M.#0. grade of... S.C.C. made with S.C.B.A. ....*" in the International Conference on Construction Materials and Smart Structures for Sustainable Development (ICCMSSSD-2020) organized by the Department of Civil Engineering, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, India during 29<sup>th</sup> to 31<sup>st</sup> January 2020.

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## Experimental Studies of Acid attack on M<sub>40</sub> grade of SCC made with SCBA

R.Ramya Swetha<sup>1</sup>, Dr. M. Swaroopa Rani<sup>2</sup>

<sup>1</sup>DNR Engineering College, Hydearabad.

Email:ramyavarma115@gmail.com.

<sup>2</sup>HOD and Professor, Jawaharlal Nehru Technological University, Kakinada

Email:swarupa\_1969@gmail.com.

### Abstract

Self-compacting concrete (SCC) is an advanced concrete that does not require vibration for placing and compaction. It is able to flow under its own weight, completely filling formwork and achieving full compaction, even in the presence of congested reinforcement. The hardened concrete is dense, homogeneous and has the same engineering properties and durability as standard vibrated concrete. In this study the sugar cane bagasse ash used in various proportions 0%, 5%, 10%, 15% and 20% weight of cement. The mix proportions of normal concrete had a water/cement ratio of 0.45 while for Cement replacement self-compacting concrete lead to increase in compressive strength for 7 and 28days all the design mixes of M<sub>40</sub> grade of self-compacting concrete. Both the physical and chemical properties of cement, sugar cane bagasse ash used.

Key Words :SCC, Compressive Strength, SCBA, Sulphuric acid

### Introduction

Concrete is the maximum fundamental element for any form of production art work. No recollect what shape of constructing structure it is, the concrete used must be check and nicely compacted. Ensuring the above elements no longer only provide more strength to the shape but also suitable finish and look to the life span of product. The compacting of any traditional concrete is carried out through outdoor strain the usage of mechanical tool.

The fluidity and segregation resistance of SCC guarantees a high level of homogeneity, minimum concrete voids and uniform concrete strength , imparting the ability for a superior stage of end and durability to the structure. SCC is regularly produced with low water-cement ratio imparting the capacity for excessive early power, earlier de mounding and quicker use of factors and systems. The removal of vibrating tool improves the environment on and close to production and precast sites wherein concrete is being positioned, lowering the exposure of people to noise and vibration.

*M. Swaroopa Rani*  
PRINCIPAL  
D.N.R. College of Engg. & Tech.  
BHIMAVARAM-534 202.