

A  
Report on  
**PREPARATION DESIGN AND ANALYSIS OF GYROID  
STRUCTURE BY USING 3D TECHNOLOGY**

A Project report submitted for the partial fulfilment of the requirements for award of Degree of

**BACHELOR OF TECHNOLOGY  
IN  
MECHANICAL ENGINEERING**

**Submitted by**

R.KALYAN	(18811A0329)
Y.MAHESH	(18811A0335)
V.VASU	(18811A0336)
B.SAITEJA	(18811A0306)

**Under the guidance of**

Shri.P.RAMANABABU, M.tech

Assistant professor

DEPARTMENT OF MECHANICAL ENGINEERING



**AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(PERMANENTLY AFFILIATED TO JNTU-KAKINADA, ACCREDITED BY NBA & NAAC,  
APPROVED BY AICTE, RECOGNISED BY UGC 12f & 2b)

(Affiliated to Jawaharlal Nehru technological university Kakinada, A.P)

TAMARAM, MAKAVARAPALEM, NARSIPATNAM-531113

2018-2022

DEPARTMENT OF MECHANICAL ENGINEERING

AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY



**CERTIFICATE**

This is to certify that the project entitled "PREPARATION DESIGN AND ANALYSIS OF GYROID STRUCTURE BY USING 3D TECHNOLOGY" is the record of the work carried out by R.KALYAN(18811A0329), Y.MAHESH(18811A0335), V.VASU(18811A0336), B.SAITEJA (18811A0306) students of final year B. Tech in the department of Mechanical engineering. This work is done for the partial fulfillment for the award of BACHELOR OF TECHNOLOGY during the year 2021-2022.

  
PRAMANA BABU M.TECH

Project Guide



V.HARI KIRAN(Ph.D.)M.TECH

Head of the Department

External Examiner

## ABSTRACT

Lattice structures are created by the repetition of a unit cell where solid struts connected to each other provide parts that combine lightweight and strength. This makes the use of cellular solids advantageous in many applications, varying from engineering to industrial areas. This work is focusing on design and mechanical testing of different lattices using 3D printing methods and compression testing. Initially, the lattices structure was designed using FUSION 360 and slicing in CURA software... Then, the part will be printed using material (ABS, PLA) by using SLA based 3D Printer. The generated components will be tested with Compression testing of these parts providing mechanical properties that are later compared with a finite element analysis (FEA) model. By creating lattice structures, it is possible to improve the mechanical and functional characteristics and to create parts with controlled porosity, and strength.