

Review Report Of

**TOPOLOGY OPTIMIZATION OF PITCH ARM OF A
HELICOPTER ROTOR HEAD**

A thesis submitted in the partial fulfillment of the requirement for the award for the degree of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

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CERTIFICATE

This is to certify that project report is entitled “**TOPOLOGY OPTIMIZATION OF PITCH ARM OF A HELICOPTER ROTOR HEAD**” was carried out by **K RAJESH (17811A0336), K CHIRANJEEVI (17811A0331), B NEELESH KUMAR (17811A0308), S AVINASH KUMAR (17811A0352), K JAYANTH KUMAR (17811A0335)**, in partial fulfilment of requirements for the award of the degree of bachelor of technology in “**MECHANICAL ENGINEERING**” by Jawaharlal Nehru Technological university , Kakinada During the years 2017-2021 .

(PROJECT GUIDE)

(HEAD OF THE DEPARTMENT)

EXTERNAL EXAMINER

ABSTRACT

Topology optimization is a mathematical method that optimizes material layout within a given design space, for a given set of constraints with an objective of maximizing the performance of the system. The aim of the current work is to optimize the proposed design of the pitch arm by modifying the existing shape to provide better stiffness and strength for the same mass ratio and perform the simulation for calculations using ANSYS software to validate the design and to compare with the original design and the check the constraints of maximum stress and thickness criteria.

Mechanism for controlling pitch changes in helicopter blades, related to the helicopter mast and connected to a lever assembly mounted into the structure, having a pair of command arms, the assembly comprising first and second bars, related by rocker arms, for selective transmission of cyclic and collective pitches.