

**A
PROJECT REPORT
ON
DESIGN AND TRANSIENT STRUCTURAL ANALYSIS OF
MONO SUSPENSION SHOCK ABSORBER**

Dissertation submitted to the
AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

*Affiliated to JNTU Kakinada
For the partial fulfillment of award of the degree*

B. Tech.
In
Mechanical Engineering
by

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CERTIFICATE

This is to certify that the project entitled “**DESIGN AND TRANSIENT STRUCTURAL ANAYSIS OF MONO SUSPENSION SHOCK ABSORBER**” is the record of the work carried out by **B. Aravind (18815A0383), M. Durga Satish (18815A0340), Y. Srinu (18815A0371), Y. Sanyasinaidu (18815A0372)** 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 2020-2021.

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ABSTRACT

The main part for a vehicle suspension is the shock absorber, which is manufactured for reducing shock impulse. Shock absorber works on the principle of fluid displacement on compression and expansion cycle. They are used in motorcycles for providing better handling, prompt braking, safety and comfort by keeping the passengers isolated from road bumps and vibration. The common type of the front suspension in motorcycle is Telescopic forks which are replaced by the Mono Shocks that gives a superior vehicle handling and provides safety while braking. Mono shock also allows the rider to fine tune the machine to give better control over the machine when riding. The springs in Mono Shock have been designed by taking considerations of many practical conditions like dynamic resistances, road tracks and vehicle aerodynamics. The Mono Shock geometry gives a rising rate of damping characteristics to the front suspensions and the designed springs used to restrict a downgraded dynamics when it returns to the immobility state posterior to humps and bumps. This design of front suspension using mass centralization concept may antiquate the present telescopic forks. A transient structural analysis is carried out by using ANSYS for different materials to decide the best material suitable having good stability characteristics.

Keywords: *Mono Suspension Analysis, Telescopic fork analysis, Transient structural analysis of Shock Absorbers.*