

**A**  
**PROJECT REPORT**  
**ON**  
**“PARAMETRIC OPTIMIZATION OF METAL INERT GAS WELDING BY USING**  
**TAGUCHI APPROACH”**

*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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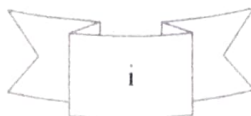
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# AVANTHI

## INSTITUTE OF ENGINEERING & TECHNOLOGY

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# CERTIFICATE

## DEPARTMENT OF MECHANICAL ENGINEERING

This is to certify that the project entitled “Parametric Optimization Of Metal Inert Gas Welding By Using Taguchi Approach” is the bonafied work carried out by S ANAND PAUL (17811A0355), B SAI BABA (18815A0304) , B NAVEEN (18815A0305), V H S KUMAR (17811A0363), P GOPI CHAND (17811A0350) student of B.Tech (Mechanical Engineering), Avanathi Institute of Engineering and Technology during the academic year 2020-21 in partial fulfillment of the requirements for the award of the degree of Bachelor of technology in Mechanical Engineering.

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## ABSTRACT

These days one of the most important welding processes in industries is Metal Inert Gas Welding (MIG). MIG welding is affected by many factors such as the torch velocity, torch gap, voltage, current, gas flow rate, nozzle to plate distance, torch angle, wire feed rate, Welding speed, weld deposit area etc., which are input parameters in this project work. In this process input variables are voltage, current and welding speed with tensile properties and hardness as responses of low carbon steel (ASTM A29).

The project work deals on optimization of welding process variables by using Metal inert gas welding. In this process input variables are voltage (V), current (A) and welding speed (S) with tensile properties, hardness and penetration as responses of low carbon steel (ASTM A29). The design of experiments based on Taguchi orthogonal array [L<sub>9</sub>], acquire Analysis of variance (ANOVA) to determine the influence of parameters with optimal condition. Finally, the confirmation test has been carried out to compare the predicted value of tensile strength and hardness with the experimental value.