

# CERTIFICATE

Date:-\_\_\_\_\_

This is to certify that report entitled “**Effect of heat treatment and current on weldability of cast iron**” by **Mr. Pradeep Tewari** is the requirement of the partial fulfilment for the award of Degree of **Master of Technology (M.Tech.) in Production Engineering** at **Delhi Technological University**. This work was completed under my supervision and guidance. He has completed his work with utmost sincerity and diligence. The work embodied in this project has not been submitted for the award of any other degree to the best of my knowledge.

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## **ABSTRACT**

This study was carried out to know the effects of heat treatment on mechanical properties of cast iron and effect of change in current. Shielded metal arc welding is a process of joining two pieces with generation of arc. The arc is generated to develop heat to melt the material. Thin metal rod is used in the process known as electrode .It also works as a filler material.

Cast iron is a material which is difficult to be welded. It has high carbon content. The effects of heat treatment are seen by measuring and comparing the values of tensile strength, hardness, microstructure, rupture energy. Further the effect of change in current on the properties is analysed. The electrode used in this study is of cast iron.

The reason of choosing cast iron electrode was its application in the real work field and cost. An ordinary worker cannot afford the costly electrodes. Also as this type of welding is done to repair the parts it is not feasible to use costly electrodes.

By comparing the results one can see the effects of heat treatment. The tests chosen for the effects are hardness, tensile testing, microstructure and impact test. Microstructure test tells the phases present in the different zones and justifies the variation in the properties.

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