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Report on

EFFECT OF MACHINABILITY CHARACTERISTICS UNDER NON-CRYOGENIC AND CRYOGENIC TREATED TOOL DURING TURNING OF AISI 4320

A Project report submitted for the partial fulfillment of the requirements foraward of Degree of

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IN
MECHANICAL ENGINEERING

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CERTIFICATE

This is to certify that the project entitled **"EFFECT OF MACHINABILITY CHARACTERISTICS UNDER NON-CRYOGENIC AND CRYOGENIC TREATED TOOL DURING TURNING OF AISI 4320"** is the record of the work carried out by **E.MADHU (19815A0312), G.GANESH(19815A0318), G.ANIL(18811A0310), P.VAMSI(18811A0323)** students of final year B. Tech in the department of Mechanical Engineering. This work is done for the partial fulfilment for the award of BACHELOR OF TECHNOLOGY during the year 2021-2022.

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ABSTRACT

Optimization of machining parameters is an important research area for achievement of higher productivity and high-quality products to retain and improve market share in the current competitive scenario. This Study aims turning process on AISI 4320 for an optimal parametric combination to provide the minimum surface roughness (R_a) with the Maximum Material Removal rate (MRR). Turning parameters considered are Tool type, cutting speed, feed rate and depth of cut. Eighteen experimental runs based on Taguchi's L18 ($2^1 3^3$) orthogonal array were performed followed by the Taguchi Analysis of Variance (ANOVA) to model the problem. The significance of chosen parameters on overall quality characteristics of the cutting process has been also analyzed by Analysis of Variance (ANOVA). The optimal parameter values obtained during the study have been validated by confirmation experiment.