1	2	3	4	5
	DETAILS OF TRAINING PROGRAMMES			
S.No.	Name of the course	Place	Duration	PERIOD From / To
01	Consider Fundamentals, Sel & CM	HYDERABAD	2 weeks	$19\frac{05}{03}$ to $31\frac{05}{03}$
02	Short Term course on "Non-conventional Energy sources"	Ministry of Human Resource Development, CHENNAI.	5 days	$30\frac{08}{04}$ to $03\frac{09}{04}$
03	Short Term course on "Environmental pollution control".	— do —	5 days	$17\frac{02}{05}$ to $21\frac{08}{05}$
04	Short-Term course on "WEB DESIGN".	— do —	5 days	$26\frac{05}{08}$ to $30\frac{05}{08}$
05	Short-Term course on "C Programming".	— do —.	5 days	$20\frac{06}{05}$ to $24\frac{06}{05}$
06	Auto CAD,	Indo German Institute of Advanced Technology, Visakhapatnam.	1 week	$15\frac{12}{08}$ to $20\frac{12}{08}$
07	CNC milling Programme and machining.	— do —	1 week	$28\frac{01}{09}$ $02\frac{02}{09}$
08	Short Term course in "Instructional Design & Delivery systems"	Ministry of Human Resource Development, CHENNAI.	1 week	$24\frac{08}{09}$ to $29\frac{08}{09}$
09	Short Term course on "Lab Practice in mech. Engg"	— do —	1 week	$23\frac{08}{10}$ to $28\frac{08}{10}$
10	multi echelon Supply chain network Design.	Presented the research paper at New Delhi.	2 days	$07\frac{02}{11}$ to $08\frac{02}{11}$

S.V.S. HariBabu
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GOVT POLYTECHNIC
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International Conference on Advanced Material Technologies
ICAMT - 2016

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1st International Conference on

Materials, Manufacturing and Design Engineering 2016

December 20-21, 2016

Under the aegis of
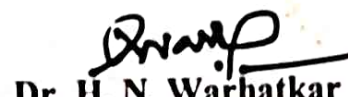**TEQIP-II**

Certificate of Participation

This is to certify that,

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has attended and presented his/her paper (ICMMD2016_paper_ **38**)

Analysis and Optimization of Response Parameters during Hard Turning with Wiper Ceramic Inserts using Response

in the 1st International Conference on Surface Methodology

"Materials, Manufacturing and Design Engineering 2016" held at

Dr. Babasaheb Ambedkar Technological University,
Lonere, Maharashtra, India
during December 20-21, 2016.

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Advances in Materials and Manufacturing Engineering
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22ⁿᵈ - 24ᵗʰ January, 2018

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has Participated / Presented a Paper on **Machinability investigation with Wiper Ceramic Insert and**.....

Optimization during the Hard Turning of AISI 4340 Steel

....

(Prof. E. Sreenivasa Reddy)
Principal, ANUCET

(Dr. M. Gopi Krishna)
Convener, ICAMME-2018

2nd National Conference on Multi-Dimensional Advancement in Mechanical Engineering

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He / She presented a technical paper titled :..... Predictive Modeling of Tool Wear , Surface Roughness and Machining Force in Hard Turning using Taguchi Approach ....

Prof.(Dr.) Dulu Patnaik
Patron

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He / She presented a technical paper titled .... Effect of Process Parameters on Surface Roughness of HSS M35 .... in Wire EDM during Taper Cutting ....

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He / She presented a technical paper titled .... Optimization of Machining Parameters on Sugarcane Ash Aluminium Composite for Optimum Power Consumption and Surface Roughness ....

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International Conference on Advanced Material Technologies (ICAMT - 2016)

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This is to certify that Dr. / Mr. / Mrs. / Miss **Ch Raju** has presented the paper:

Comparative Assessment of Cutting Inserts and Optimization during Hard Turning: Taguchi-based Grey Relational Analysis with paper code: MT-0232 in International Conference on Advanced Material Technologies (ICAMT) - 2016 organized by Dadi Institute of Engineering & Technology, Visakhapatnam, Andhra Pradesh, India, during 27th to 28th December 2016.

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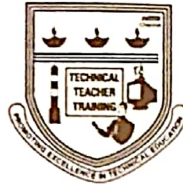
Quality Improvement Programme

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DR. CH. RAJU

Lecturer in Mechanical Engineering

Govt. Polytechnic, Narsipatnam, Visakhapatnam District, A.P.

Participated in the Short-term Course on

"Laboratory Instruction in Workshop Practice"

conducted by this Institute from **22.04.2019** *to* **27.04.2019**

the major areas covered being:

➢ Principles of Skill Learning
➢ Importance of Competency Identification & Task Analysis
➢ Hands on Practice for Exercises in Electronic Engineering Lab
➢ Preparation of Sample Worksheet, Lab Sheet
➢ Experimental Methodology - Explanation

CHENNAI
27.04.2019

for **DIRECTOR**

The Institution of Engineers (India)

33rd Indian Engineering Congress

Certificate of Participation

This is to certify that

K Venkatasubbaiah, Ch Suresh

from

Andhra University, Visakhapatnam

and

Ch Raju

from

Government Polytechnic, Narsipatnam, Visakhapatnam

Have participated in the 33rd Indian Engineering Congress held at Hotel Ananta, Udaipur during December 21-23, 2018 and presented a paper titled *'Optimization of Wire EDM Process Parameters during Taper Cutting using Taguchi and Grey Relational Analysis'*.

Dr B P Nandwana
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Mr A S Choondawat
Chairman, Technical Committee

Andhra Pradesh Akademi of Sciences
Amaravati
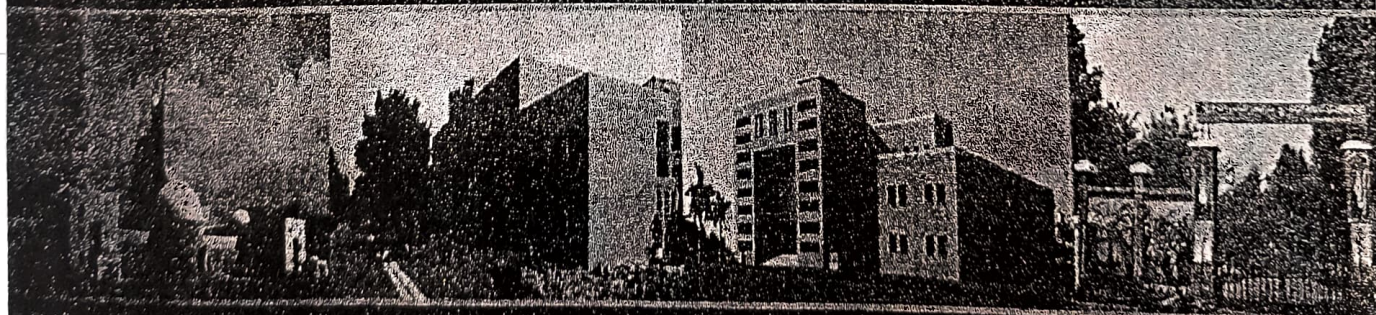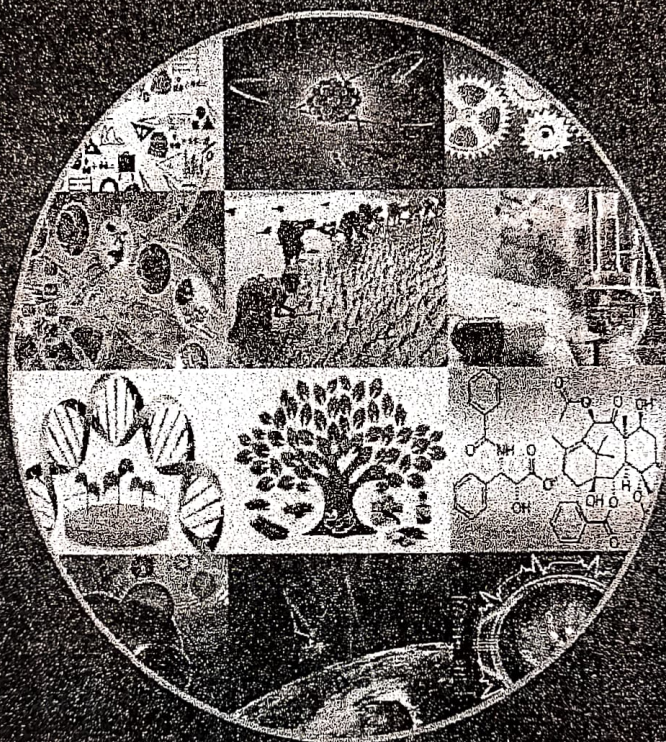
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Abstracts

Focal Theme

Integrating Science and Society for Global Sustainability

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of intermetallic phases. Based on the output results, the tool rotational speed 710 rpm, traverse speed 100 mm/min and 1.50 tool tilt angle are obtained as the optimal input parameters. The higher tensile strength is found at the dispersion of reinforcing the fine Cu particles circulated over the Al material over the stir zone region.

Keywords: Friction Stir Welding, AA6061, Copper, Mechanical Properties and microstructure, NDT, SEM, EDS.

Study of Machining Characteristics of High Speed Steel M35 Using Wire-Cut EDM

K. Venkatasubbaiah, Ch. Suresh, Ch. Raju

Department of Mechanical Engineering, Andhra University, Visakhapatnam, drkvsau@yahoo.co.in
Department of Mechanical Engineering, Andhra University, Visakhapatnam. challasuri213@gmail.com
Department of Mechanical Engineering, Government Polytechnic, Narsipatnam, chraju99@gmail.com

Wire electrical discharge machining (WEDM) is an electro-thermal machining process for conductive materials. WEDM has become an important non-traditional machiningprocess, as it provides an effectivesolution for producing components made of difficult-to-machine hard materials. WEDM is able to machine complicated and precision parts for hard conductive materials. Taper-cutting is one of the most important applications of wire electrical discharge machining (WEDM) processused for producing precise complex geometries with inclined surfaces in hard material parts. A metal wire electrode with de-ionized water is used to machine metal by the heat produced from electrical sparks. In present research work is study of machining characteristics of High Speed Steel M35 during using Wire-EDM on Material Removal Rate and Cutting Speed. Part Thickness, Taper Angle, Pulse-ON time, Pulse-OFF time, Wire feed, Wire Tension and Servo Voltage Gap are considered as machining characteristics. The experiments were conducted by using Taguchi's orthogonal array L27 (3^7).The results got from the experimental runs were investigated by utilizingMinitab17. ANOVA for S/N proportions was done to investigate the most contributing machining characteristics influencing on Response Parameters.

Keywords: Wire EDM, Taper Cutting, HSS M35, ANOVA, Material Removal Rate, Cutting Speed

Implications of spinodal decomposition on the plasmonic properties of alloy thin films

P. Bandaru, P. Jaya Kumar and Shourya Dutta

Dept. Materials Science and Metallurgical Engineering, Indian Institute of Technology Hyderabad, Sangareddy

Metal plasmonics (study of interaction of light with metal nanostructures)have promise for applications in circuits, biosensors and can also be used for enhancing the efficiency of solar cells. Even though the metals Ag, Au and Cu are good plasmonic materials, their tunability and performance are limited by optical response and ohmic losses. Furthermore, alternative materials such as transparent conductive (TCOs), interstitial metal nitrides and highly doped semiconductors exhibit plasmonic properties that are inferior to the noble metals [1]. Noble metal alloys provide wider possibility to tune the dielectric function by varying composition, microstructure and possibly phase [2, 3]. In this work, we will present results showing
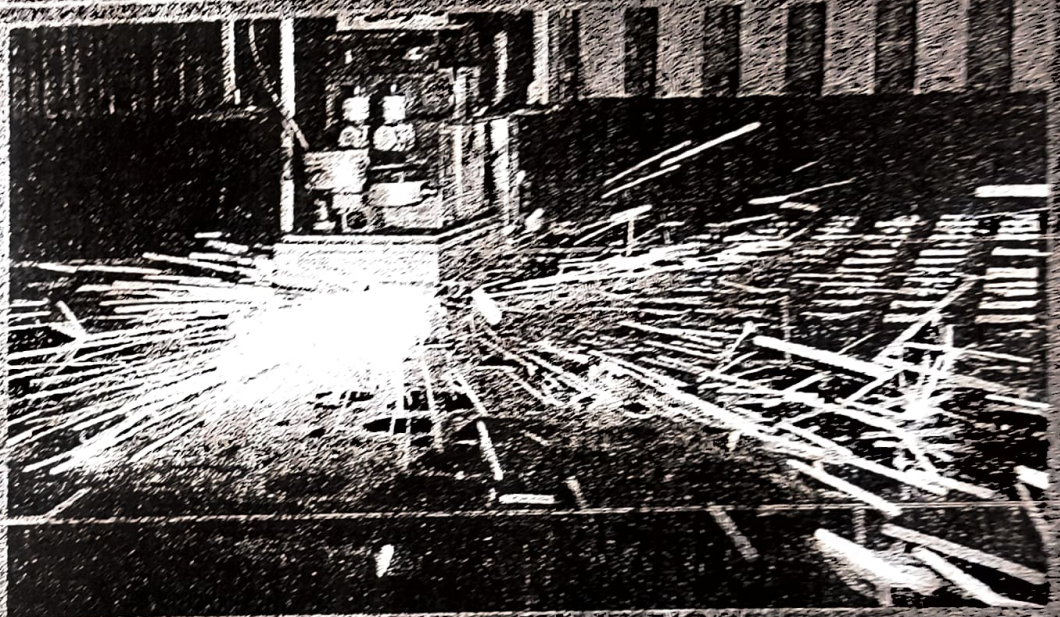
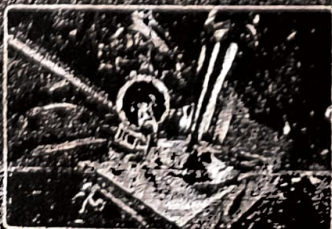# NATIONAL CONFERENCE
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Effect of Cutting Edge Geometry, Workpiece Hardness on Residual Stress during Hard Turning

K. VenkataSubbaiah[1] Ch. Raju[2] Ch. Suresh[3]

[1]Professor, Department of Mechanical Engineering, Andhra University, Visakhapatnam, India.

[2]Senior Lecturer, Department of Mechanical Engineering, Govt. Polytechnic, Narsipatnam, India.

[3]Research Scholar, Department of Mechanical Engineering, Andhra University, Visakhapatnam, India.

ABSTRACT

In this paper an experimental investigation is conducted to determine the effects of the tool cutting edge geometry, workpiece hardness on the residual stresses in dry hard turning of AISI 4340 steel. X-ray diffraction technique was used to obtain in depth residual stresses profiles in both axial and circumferential directions. The results show that tool geometry, workpiece hardness and cutting parameters significantly affect the surface and sub surface residual stresses, maximum compressive residual stress below the machined surface and its location. Wiper cutting inserts produces higher compressive residual stress as compared to the conventional tool geometry inserts.

(NCMAME - 2017)

Souvenir

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Predictive Modeling of Tool Wear, Surface Roughness and Machining Force in Hard Turning using Taguchi Approach

Ch. Raju[1*], K.Venkata Subbaiah[2], Ch. Suresh[3], Ch. Maheswara Rao[4]

[1]Senior Lecturer, Department of Mechanical Engineering,
Government Polytechnic, Narsipatnam, Visakhapatnam.
[2]Professor, Department of Mechanical Engineering, Andhra University, Visakhapatnam.
[3]Research Scholar, Department of Mechanical Engineering,
Andhra University, Visakhapatnam.
[4] Assistant Professor, Department of Mechanical Engineering,
ANITS College of Engineering, Visakhapatnam.
[1]chraju99@gmail.com, [2]drkvsau@yahoo.co.in, [3]challasuri213@gmail.com,
[4]mahe.mech129@gmail.com

Abstract: The present work concentrates on finding the influence of cutting factors on the responses. A series of experiments were conducted on the AISI 4340 steel to know the variation in the responses by changing the hardness of the material (45, 50 and 55 BHN) and the insert type (Conventional and wiper) along with the speed, feed and depth of cut. L18 mixed type orthogonal array has been selected for conducting the experiments. Tool wear, surface roughness and machining forces and taken as responses and are minimized using the single objective taguchi's method. ANOVA is also employed to find the influence of cutting parameters on the responses. The optimal designs for the responses are predicted based on the estimated average mean values and are more accurate.

Keywords. Tool Wear, Surface Roughness, Machining Force, Hard Turning, Taguchi Approach, wiper insert.

Performance simulation of passive Direct Methanol Fuel Cell

Dr. Ranjan K. Mallick[1*], Dr. Himanshu S. Moharana[2], Dr. Kailash Mohapatra[3], Dambarudhar Das[4] and Subhashree Pothal[5]

[1,3,4,5]Department of Mechanical Engineering, REC, Bhubaneswar,751024, India
[2]Department of Mechanical Engineering, HIT, Khordha, 752057, India
[1*]ranjan2mallick@gmail.com

Abstract. In this work, a steady state and non-isothermal model is developed to simulate the performance of liquid feed passive Direct Methanol Fuel Cell (DMFC). The model is developed considering the heat and mass transfer effects. The model can serve as a prediction tool for estimating molar concentration of methanol, water and oxygen at each layer as well as temperature profiles. The developed model is validated with the experimental data.

Keywords. DMFC, Mass transfer profile, temperature profile.

Effect of Process Parameters on Surface Roughness of HSS M35 in Wire-EDM during Taper Cutting

Ch. Suresh[1], Dr. K. Venkatasubbaiah[2] and Ch. Raju[3]

[1] Research Scholar, Department of Mechanical Engineering,
Andhra University, Visakhapatnam.

[2] Professor, Department of Mechanical Engineering, Andhra University, Visakhapatnam.

[3] Senior Lecturer, Department of Mechanical Engineering,
Government Polytechnic, Narsipatnam, Visakhapatnam.

[1] challasuri213@gmail.com, [2] drkvsau@yahoo.co.in [3] chraju99@gmail.com

Abstract. Wire-electrical- discharge machining (WEDM) is a upgraded electro- discharge machining (EDM) and has been widely used for quite a while cutting punches, dies, shaped pockets and other machine parts on conductive materials. The WEDM procedure is especially appropriate for machining hard materials and additionally complex shapes. The primary objective of the present work is to explore the impacts of different WEDM process parameters on the machining quality and to acquire the ideal sets of process parameters like Part Thickness, Taper Angle, Pulse-ON time, Pulse-OFF time, Wire feed, Wire Tension and Servo Voltage Gap are studied during taper cutting on High Speed Steel (HSS) M 35 by conducting an analysis using L27 orthogonal array. The results got from the experimental runs were investigated by utilizing Minitab17software. ANOVA for S/N proportions was done to investigate the most contributing process parameters influencing on Surface Roughness (R_a). The results have demonstrated that the improvement in the average surface finish is acquired while machining during taper cutting.

Keywords. Wire-EDM, Taper Cutting, Surface Roughness, ANOVA, HSS M35.

Indian Engineering Congress

Kolkata, December 15-18, 2016

Theme

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85

Surface Roughness and Tool Wear Optimization in Hard Turning Using Taguchi Based Utility Concept during Comparative Assessment of Inserts

K. Venkata Subbaiah[1], Ch. Suresh[1] and Ch. Raju[2]

Abstract: *The present experimental analysis aims to compare the conventional cutting inserts with wiper cutting inserts during the hard turning of AISI 4340 steel and estimating the optimum machining parameters using Taguchi based utility concept. Type of insert, hardness, cutting speed, feed, and depth of cut are taken as process parameters. Taguchi's L18 orthogonal array was used to conduct the experimental tests. Parametric analysis carried in order to know the influence of each process parameter on the three important Surface Roughness and tool wear. Taguchi based utility concept used to optimize the process parameters for individual response and multi-response outputs. Finally ANOVA concept is employed on multi SN ratio to find out the relative significance of machining parameter in terms of their percentage contribution.*

Keywords: Hard Turning, AISI 4340 Steel, Surface Roughness, Too Wear, Wiper Ceramic Insert, Utility Concept.

Introduction

Present manufacturing industries ultimate aim is to produce high quality products at low cost to stand in highly competitive manufacturing industries. Hard turning is becoming the prime option for steels to turn at hard state (45-65) as it has several benefits over conventional turning methods of machining and grinding. It reduces the machining time about 60% of conventional hard turning time, even at a lower depth of cuts and feed rates [1].

Surface roughness characteristics are important to the functionality of machined components; hence due to the understanding the surface generation mechanisms the manufacturing industries are able to improve the durability of their machined components. Tool wear is also prime machining parameter as it directly related to manufacturing cost and surface to be generated. As a result, a large number of investigations have been conducted to determine the effect of parameters such as feed rate, tool nose radius, cutting speed, and depth of cut on machining parameter. Kopac *et al.* [2] state that, an increase in cutting speed results smoother surface with ceramic inserts. Noordin *et al.* [3] find the feed was the most significant factor for surface roughness, while hard turning of AISI 1045 steel bars with coated carbide. Thamizhmanii *et al.* [4] confirm that the depth of cut is the important parameter and cutting speed had less influence on surface roughness. Boucha *et al.* [5] conduct an experimental study with the CBN tool in the view of tool wear and cutting forces at various levels work piece hardness and cutting speeds. Ohtani and Yokagawa [6] stated that the main wear mechanism of CBN and ceramic tools is due to abrasion.

Optimization of process parameters is an essential criterion during the manufacturing to acquire high quality. Generally, the Taguchi method is the best option for optimize process parameters to achieve high quality [7, 8]. However, an application of Taguchi is limited to the optimization of a single performance characteristic [9]. In the present investigation, a multi characteristics optimization model based on Taguchi based utility concept has been used for multi response optimisation.

Experimental Setup

Work Piece Material

The work piece material was AISI 4340 steel as round bars of 30 mm diameter and an axial length of 150 mm. The synthesis of material is 0.38% C, 0.228% Si, 0.609% Mn, 0.95% Cr, 1.5% Ni, 0.22% S, 0.226% Mo and 0.026% P. AISI 4340 harden steel has numerous applications in automobile industry such as parts like axles, gears, camshafts, driving pinion, link parts, etc. The work piece

[1]Department of Mechanical Engineering. Andhra University, Visakhapatnam–530003, India.
[2]Department of Mechanical Engineering, Govt. Polytechnic, Narsipatnam, Andhra Pradesh–530003, India. ✉ chraju99@gmail.com

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Comparative Assessment of Cutting Inserts and Optimization during Hard Turning: Taguchi-Based Grey Relational Analysis

K. Venkata Subbaiah[1]   *Ch. Raju[2]   Ch. Suresh[3]

[1] Professor, Department of Mechanical Engineering, Andhra University, Visakhapatnam-530003
[2] Senior Lecturer, Department of Mechanical Engineering, Govt. Polytechnic, Narsipatnam- 531116
[3] Research Scholar, Department of Mechanical Engineering, Andhra University, Visakhapatnam- 530003
[1]drkvsau@yahoo.co.in [2]chraju99@gmail.com [3]challasuri213@gmail.com

Abstract: The present study aims to compare the conventional cutting inserts with wiper cutting inserts during the hard turning of AISI 4340 steel at different workpiece hardness. Type of insert, hardness, cutting speed, feed, and depth of cut are taken as process parameters. Taguchi's L18 orthogonal array was used to conduct the experimental tests. Parametric analysis carried in order to know the influence of each process parameter on the three important Surface Roughness Characteristics (R_a, R_z, and R_t) and Material Removal Rate. Taguchi based Grey Relational Analysis (GRA) used to optimize the process parameters for individual response and multi-response outputs. Additionally, the analysis of variance (ANOVA) is also applied to identify the most significant factor.

[Keywords : Hard turning; AISI 4340 steel; Surface Roughness Characteristics; Material Removal Rate; wiper ceramic insert; Grey Relational Analysis.]

1. INTRODUCTION

Present manufacturing industries are trying to establish the new methods for producing high-quality products with low machining costs. Quality aspect of the product is generally associated with its surface roughness characteristics, in turn, it is important to the functionality of machined components. Achievement of a fine surface is a big issue during the conventional machining for advanced hard engineering materials, which involves a series of operations, further it, leads high machining costs with low production rate. In this scenario, hard turning is the best alternative for steel to turn at hard state (45-65) as it has several benefits over conventional turning methods in the quality aspects. It reduces the machining time about 60% of conventional hard turning time, even at a lower depth of cuts and feed rates [1]. Surface quality and production rate are generally associated with the process parameters adopted during the machining. Kopac et al. [2] state that, production of fine surfaces possible by adopting higher cutting speeds during the machining with ceramic inserts. Noordin et al. [3] revealed that the feed was the important factor for surface roughness, while hard turning of AISI 1045 steel with carbide inserts. Thamizhmanii et al. [4] confirm that the depth of cut is the important parameter and cutting speed had less influence on surface roughness. Aouici et al. [5] reported that surface roughness is mainly influenced by the feed rate and workpiece hardness during the turning of AISI H11 steel with CBN cutting inserts.

With the introduction of the wiper insert in machining, surface finish characteristics are greatly modified and it competes with the grinding in fine surface generation aspect with the additional advantage of higher productivity. Addona [6] compares the wiper inserts with conventional inserts and reports the superiority of wiper inserts over conventional inserts. Wiper insert can produce same surface finish even though they are operated at double feed rate compared with conventional inserts [7]. Optimization of cutting conditions is generally carried to obtain best responses for the machining. Taguchi method is considered as the prime option for design of experiments (DOE) and single parameter optimization, as it locate the critical parameters and predict optimal levels for each process
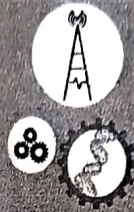
Indian Technology Congress 2016

Excellence in Engineering Practice:
Networking and Collaboration

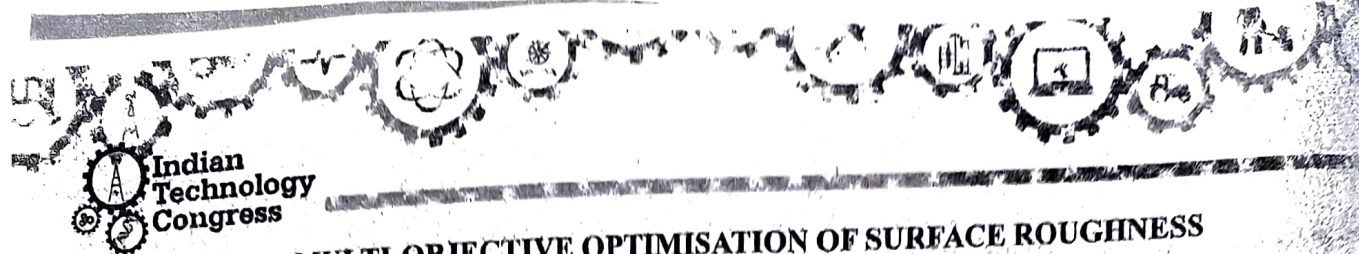# Souvenir & Abstracts of Technical Papers

01-02 December 2016

Jnana Jyothi
Auditorium

Central College Campus
Bengaluru

MULTI-OBJECTIVE OPTIMISATION OF SURFACE ROUGHNESS AND MRR WITH DESIRABILITY AND TLBO APPROACHES DURING THE HARD TURNING WITH WIPER CERAMIC INSERT

K. Venkata Subbaiah[1], Ch. Raju[2] and Ch. Suresh[3]

[1]Professor, [3]Research Scholar, Department of Mechanical Engineering, Andhra University, Visakhapatnam
2 Senior Lecturer, Department of Mechanical Engineering, Govt. Polytechnic, Narsipatnam
E-mail: drkvsau@yahoo.co.in

Producing high-quality products at a faster rate with the low cost are the present strategies followed by the manufacturing industries. The quality of the surface is the essential characteristic for any hardened component as it gives a suitable condition for its long life due to wear resistance, fatigue resistance. At the same time, the material removal rate is also an important factor to be considered during the achievement of higher surface finish for any manufactured products in the economic aspect. This paper presents multi-objective optimisation of surface roughness and material removal rate during the hard turning of AISI 4340 Steel using wiper ceramic cutting insert. Material hardness, cutting speed and feed rate are taken as processing parameters. Response surface methodology based Desirability approach and Teaching Learning Based Optimization techniques are used for multi-objective optimisation. Finally, the ranges for best cutting conditions are proposed for industrial production.

Keywords: Wiper Ceramic Insert, Desirability Approach, TLBO, Surface Roughness, MRR

FUTURE CONCEPTUAL DESIGN TO SECURE THE AIRCRAFT AT THE TIME OF CATASTROPHIC FAILURE OF LANDING GEAR MODERN ENGINEERING PRACTICE AND TREND FOR CONCEPTUAL AIRCRAFT LANDING

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In Aircraft operation the most crucial time is during the takeoff and Landing. From the decades in aviation industries is finding and upgrading the new design and technology to ensure the safe operations. According to the 'Boeing' Statistical summary of jet accidents worldwide operations (1959-2015). The 47% catastrophic failure chances are found during the phase of Final Approach and landing. Landing gear is important component in the aircraft. It is manufactured with tough material to with stand the weight and balancing of the aircraft structure like wings and fuselage. In certain cases if the landing gear fails to deploy then aircraft is goes for the belly landing which is like a crash landing. In this paper carried out some intensive research and found some alternative conceptual approach for safe landing of aircraft. This conceptual is similar like arresting gear which is used in the Navy aircraft carriers are stopped by a cable-and brake arrangement. It is consisted with a Twin Screw Axle Scaffold (TSAS) on runway which is roll over the surface as by aircraft is approaches on the runway when it fails to deploy the landing gear. It automatically carries the weight and distributed on the Twin screw Axle Scaffold (TSAS). It can be connect with remotely to the aircraft as well as from the ground to coordinate the speed of the aircraft as well as the TSAS speed.

Keywords: Aircraft Landing Gear, Twin Screw Axle Scaffold, Landing and Takeoff Operation, Conceptual Design, Landing Gear Failure Condition, Air Crash Investigation

OPTIMIZATION OF WIRE EDM PROCESS PARAMETERS USING TAGUCHI AND GREY RELATIONAL ANALYSIS

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The present work proposes an experimental investigation and optimization of various process parameters during taper cutting of HSS M35 in wire electrical discharge machining process. Due to large number of process parameters and process responses lots of researchers have attempt to model this process. Therefore, it is essential to study the effect and optimal levels of these parameters for better process responses. It is also essential to find out the relationship among the process responses and the process parameters, so as to predict the outputs for the new combination levels of the inputs. In this work an attempt is made to optimize the process parameters against the process responses during taper cutting of HSS M35 material. Design of Experiments is carried out based on Taguchi's parameter design method and ANOVA is preformed to find optimal process responses. Grey Relational Analysis has been adopted to convert this multi-objective criterion into an equivalent single objective function, which has been optimized by using Taguchi technique. Optimal setting has been verified through confirmatory test exhibits good agreement to the predicted value. This indicates utility of grey-Taguchi technique as multi-optimizer in the field of Wire-EDM.

Keywords: Wire-EDM, HSS M35, Taper Cutting, Taguchi and Grey Relational Analysis

MECHANICAL PROPERTIES AND WEAR BEHAVIOR OF SUGARCANE BAGASSE ASH REINFORCED AA6061 COMPOSITE

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In this study Industrial waste sugarcane Bagasse fly ash (SCBA) was used as a reinforcement to cast a Metal Matrix composite (MMC). AA 6061 is used as matrix material. Particles of size 0.165μm and percent reinforcement varying from 0% to 2.5% weight percentage were used in fabrication of MMC's via double stir casting technique. The effect of low particle size on the dispersion and strength of MMC is studied. Composites were characterized for mechanical properties such as hardness and tensile strength. The microstructures were examined with optical micrograph of 100x magnification. It is observed that the hardness and tensile strength were increased as reinforcement increased. The dry sliding wear behaviour of the composites in the cast conditions were studied using pin on disc apparatus. Experiments were conducted varying the loads from 10N to 30N, for a constant distance of 5000m and constant sliding speed of 500 rpm. Sliding wear resistance has been increased for reinforced alloy as compared to AA6061 alloy and also resistance increased as reinforcement increased.

Keywords: Aluminium Composites, Sugar Cane BAGASSE Ash, Sliding Wear, Hardness, Friction, Micro Structure

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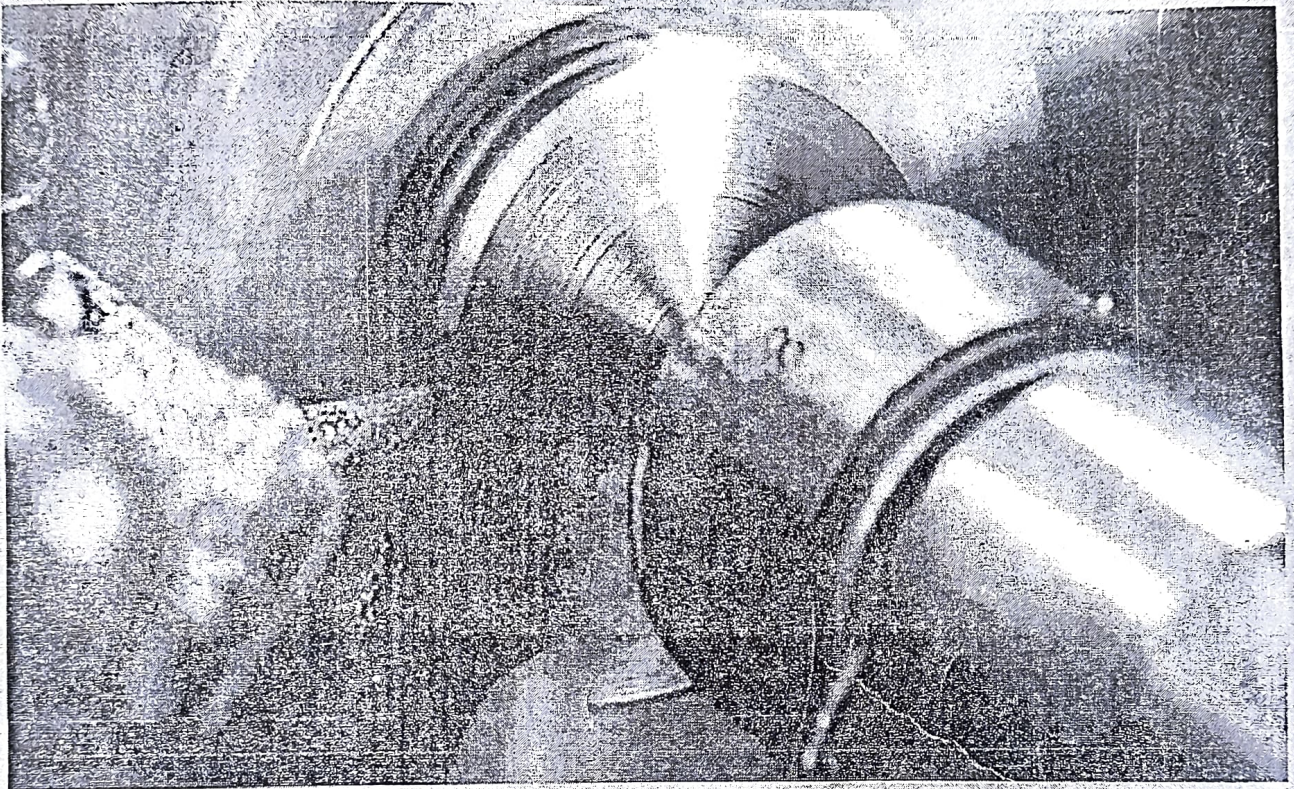
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Optimization of Wire EDM Process Parameters using Taguchi and Grey Relational Analysis

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Abstract:

The present work proposes an experimental investigation and optimization of various process parameters during taper cutting of HSS M35 in wire electrical discharge machining process. Due to large number of process parameters and process responses lots of researchers have attempt to model this process. Therefore, it is essential to study the effect and optimal levels of these parameters for better process responses. It is also essential to find out the relationship among the process responses and the process parameters, so as to predict the outputs for the new combination levels of the inputs. In this work an attempt is made to optimize the process parameters against the process responses during taper cutting of HSS M35 material. Design of Experiments is carried out based on Taguchi's parameter design method and ANOVA is preformed to find optimal process responses. Grey Relational Analysis has been adopted to convert this multi-objective criterion into an equivalent single objective function, which has been optimized by using Taguchi technique. Optimal setting has been verified through confirmatory test exhibits good agreement to the predicted value. This indicates utility of grey-Taguchi technique as multi-optimizer in the field of Wire-EDM.

Keywords: Wire-EDM, HSS M35, Taper Cutting, Taguchi and Grey Relational Analysis.

Effect of Machining Parameters on surface roughness during the Hard turning of AISI 4340 Steel

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Abstract

Hard turning is effectively used in modern manufacturing industries. This study investigates the influence of process parameters such as Type of insert, hardness, cutting speed, feed and depth of cut on surface roughness (R_a), Experiments have been conducted using Taguchi's L18 orthogonal array in a CNC turning machine on hardened AISI 4340 steel. The analysis of variance (ANOVA) is employed to analyze the influence of process parameters. The results have shown that the improvement in the average surface finish is obtained when machining with wiper ceramic insert. Results of this study indicate that importance of wiper geometry inserts in the production industry. The workpiece hardness and feed rate also shows their significant effect on R_a.

Keywords: Wiper Ceramic Insert, Taguchi's Method, AISI4340 Steel, Surface Roughness, ANOVA.

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A FRAMEWORK STUDY ON INDIAN HOSPITALS IN
SMART CITY INITIATIVES BY BIG DATA ANALYTICS (MAPREDUCE)

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The current Indian population drastically increases, mean while the renowned area dimension infrastructure also increases. So that "smart" development cities is emerging as a strategy to mitigate the problems generated by the urban population growth and rapid urbanization. To understand the gaps in the literature about smart cities and in response to the increasing use of infrastructures, the academic research has sparingly discussed the phenomenon on Smart cities, this paper discuss the challenging futures ,need of Smart Hospitals in Smart City of India.

This paper proposes a framework to understand the concept of SMART Hospitals as infrastructure by Big Data. The Internet of Things (IoT) is increasingly being recognized by researchers and analysts as one of the most sophisticated technologies that has the potential to not only affect the health, safety and productivity of billions of people but also has a major economic impact. This paper also focus on what is the need of including Smart Hospitals in Smart Cities initiations, how Smart Hospital is monitor the IoT to know the patient's healthcare with the use of network of sensors, actuators and other mobile communication devices by Big Data tools(MAPReduce). Based on the exploration of a wide and extensive array of literature from various disciplinary areas we identify critical factors of smart city initiatives: Smart Energy, Smart Environment, Smart Transportation, Smart IT & Communications and Smart Buildings .These factors form the basis of an integrative framework that can be used to examine how smart city initiatives and include predominant factor as Smart Hospital(SH) for good governs .This framework with SH suggests directions and agendas for smart city research and outlines practical implications by Big Data Analytics for development of Smart City in India.

Keywords: Smart City; Smart Hospital; Internet of Things (IoT); Big Data Tools; MapReduce

INFLUENCE OF MATERIAL HARDNESS IN HARD TURNING WITH
WIPER CERAMIC INSERT ON SURFACE ROUGHNESS

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In the view of production cost, present industries looks at manufacturing processes which offer shorter manufacturing times with high quality. This paper examines the effect of material hardness and cutting parameters (cutting speed, and feed rate) on surface roughness components (Ra, Rz and Rt) during the hard turning of AISI 4340 Steel using wiper ceramic cutting insert. ANOVA and Response surface methodology (RSM) is implemented to validate the results obtained during experimentation and to predict the behaviour of the system under any condition within the operating range. It is clear from the

analysis that the feed rate has a significant contribution than material hardness and speed for Ra and Rz, whereas for Rt, material hardness shows significant contribution than speed and feed rate.

Keywords: Wiper Ceramic Insert, ANOVA, RSM, Ra, Rz and Rt

PRIORITIZATION OF RAILWAY PASSENGER'S SERVICE QUALITY ATTRIBUTES USING FACTOR ANALYSIS AND AHP METHODOLOGY – A CASE STUDY

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Railways are one of the potential sectors in the field of transportation in India. Indian Railway is a significant source for economic development of the nation. But less emphasis has been given to the improvement of the services provided by the Indian Railways, especially Southern Railways. This study is aimed to focus on identifying service quality attributes in a selective route of Southern Railway and determining their priority structure. In order to categorize the user needs into quality dimensions, Factor Analysis (FA) has been carried out on user responses obtained through questionnaire survey. Analytic Hierarchy Process (AHP) is employed to determine the priority ratings of the railway service quality dimensions. The priority structure of the quality dimensions provides an idea for the railway management to allocate the resources in an effective manner to achieve more user satisfaction. A case study is presented to demonstrate the proposed methodology.

This study investigates how reservation and ticketing, railway platform amenities, in-train-service, employee service, punctuality, safety and security in the journey determine railway passenger's service quality. Based on psychometric scale development approaches, this study conceptualized, constructed, refined and tested a multi item scale 'RAILQUAL' that examined key factors influencing railway passenger service quality.

Keywords: Quality Attributes, Factor Analysis, Analytic Hierarchy Process

QFD APPROACH TO ROAD SAFETY - A CASE STUDY

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Road transport is the backbone of modern society and economy. We all are dependent on road transport. It is difficult to imagine life without it. Tremendous growth of both road network & road traffic in India brought the problem of road accidents resulting in injury and fatalities to road users. One of the major tasks of police stations is the management of local road traffic accidents. Quality Function Deployment (QFD) which an important tool of Total Quality Management (TQM), is most commonly applied in many industries. In the present scenario, the service organizations are widely adopting the concept of QFD with a view to improve the service quality. This thesis presents the application of QFD to a police services, traffic police
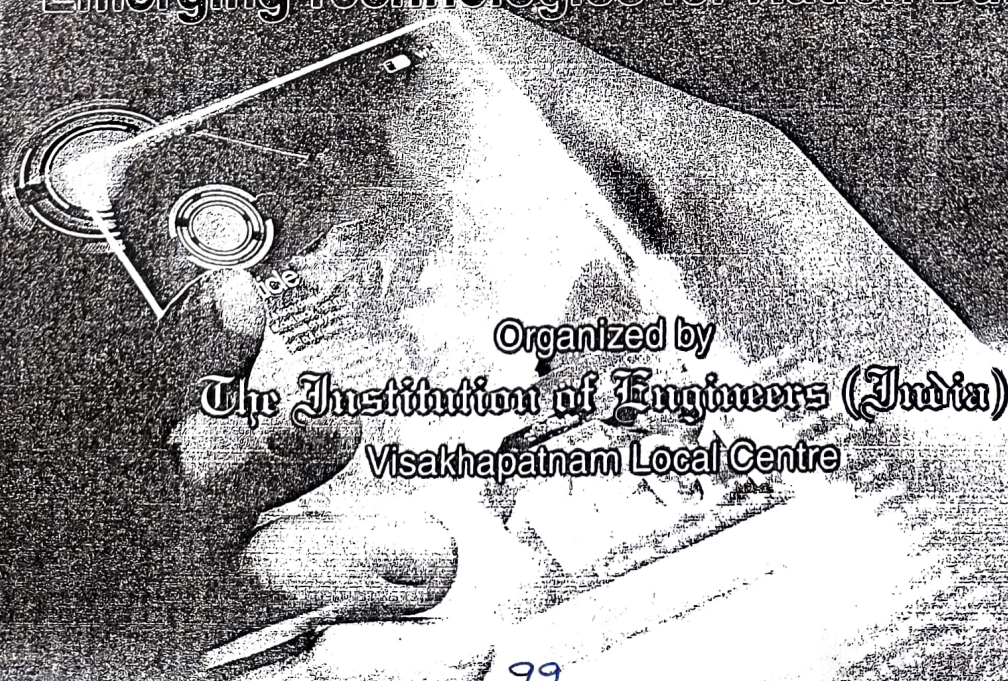
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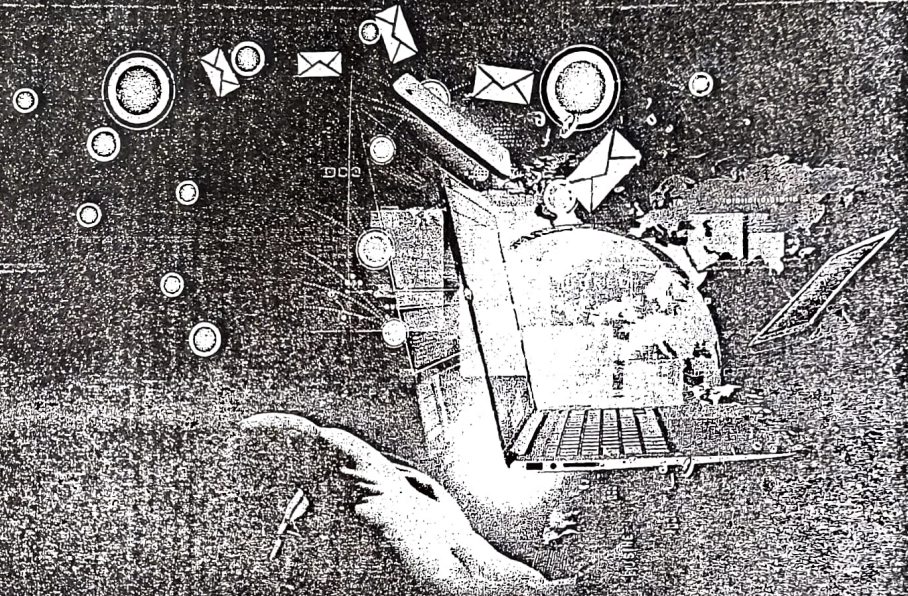
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NANO TECHNOLOGY IN NANO ROBOTS

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ABSTRACT

A Nano Robot is an electro-mechanical or bio-mechanical device or group of devices that can perform autonomous or preprogrammed tasks. Nano Robots may be used to perform tasks that are too dangerous or difficult for humans. The increased anticipation of the industries to manufacture quality based and cost. The efficient products, consuming very less amount of raw materials, could be reached with the help of the newly emerging nanotechnology. This paper covers about how this technology could be implemented in the field of medicine and others. The nanotechnology provides the sophisticated way to eliminate the problems and human diseases completely by using the Nano robots without any side effects. These Nano robots are programmed in order to perform the operation efficiently.

In this paper we will be briefing about the applications of Nano robots. Why Nano robots are used? What are the advantages? What may be the limitations? Answers to all such questions will be presented through this paper. Finally the recent advancements in nano robots and automation, design issues, critical factors are also touched upon. All these are given through simple English and in a lucid manner. We hope that, it will satisfy the needs of this topic!

ANALYSIS OF SURFACE ROUGHNESS IN HARD TURNING OF AISI 4340 STEEL USING CERAMIC WIPER INSERTS

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ABSTRACT

The effect of cutting tool geometry has long been an issue in understanding mechanics of turning and hard turning process with advanced cutting tool materials has several advantages over grinding. It leads short cycle time, process flexibility, compatible surface roughness, higher material removal rate and less environment problems without the use of cutting fluid. This paper presents an experimental study of AISI 4340 steel hardened to (40, 45 and 50) HRC, turned with wiper ceramic inserts. In this study, the effects of workpiece hardness, cutting speed, feed rate and depth of cut on surface roughness characteristics (R_a, R_z and R_t) in the hard turning were experimentally investigated. The experimental layout was designed based on the Taghuchi's L27 Orthogonal Array technique and Analysis of Variance (ANOVA) was performed to identify the effect of the cutting parameters on the response variables. The statistical analysis reveals that the feed rate and depth of cut have significant effects in reducing the surface roughness. Results show that both feed rate and workpiece hardness have statistical significance on surface roughness. It is possible to get high surface quality $R_a < 0.8$ (micron), in workpiece of mechanics precision without cylindrical grinding operations with wiper inserts and high feed rate. Finally, the ranges for best cutting conditions are proposed for serial industrial production.

Keywords: Hard turning, Ceramic Inserts, Wiper Inserts, Taghuchi, ANOVA
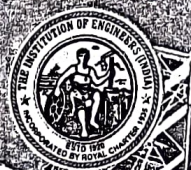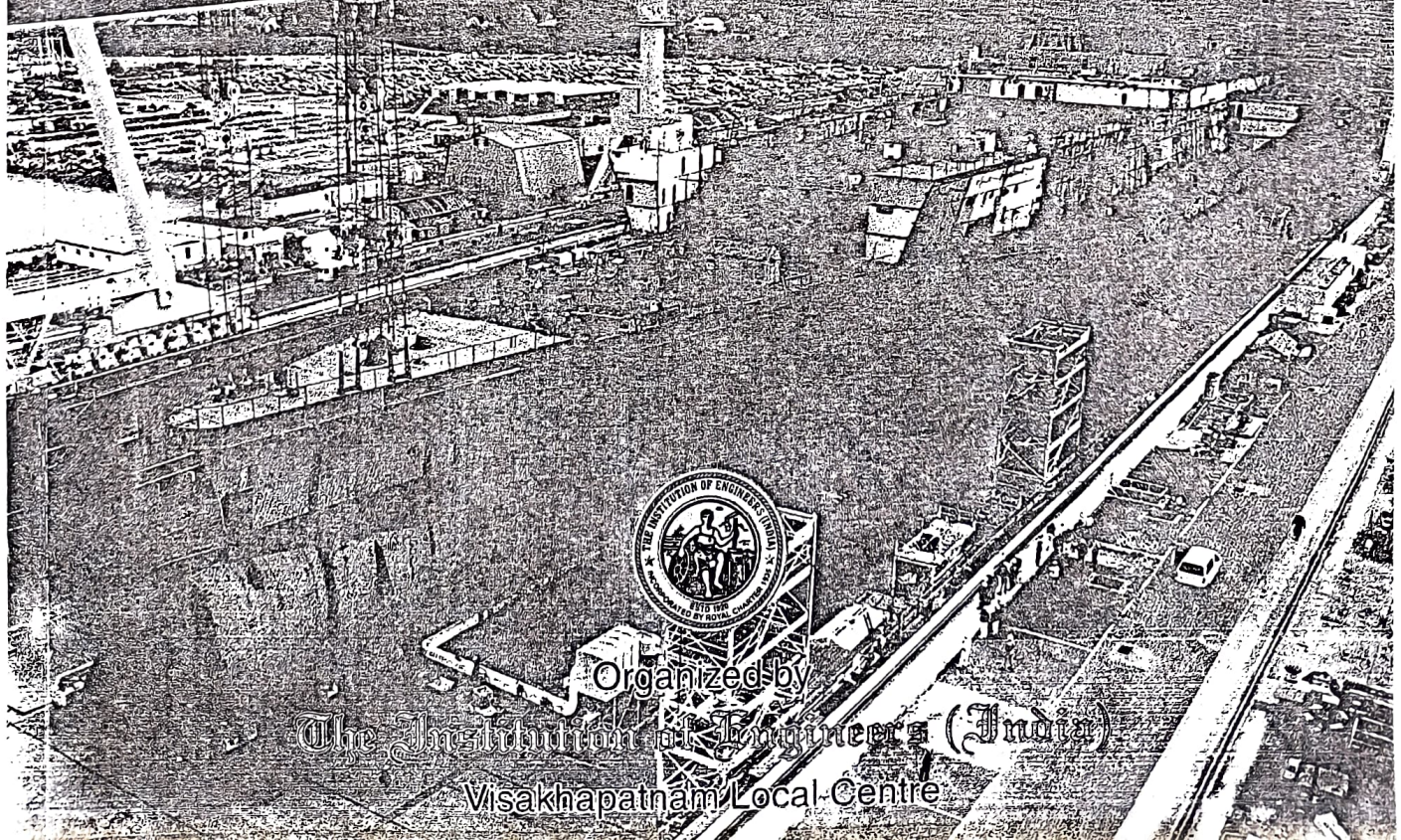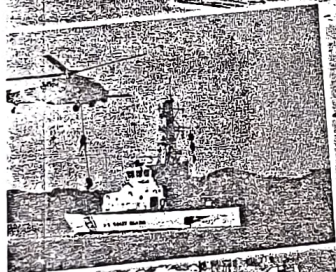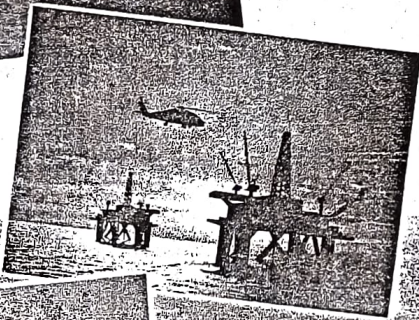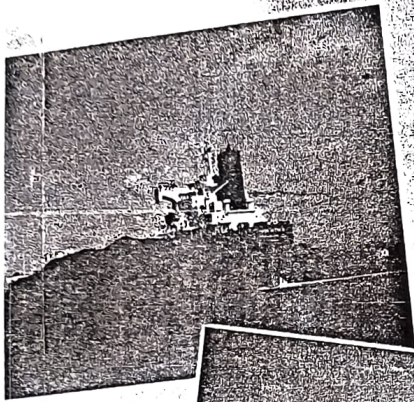
THE OPTIMIZATION OF DESIGN CHARACTERISTICS IN SHIP BULIDING BY USING QFD-DSS APPORACH

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ABSTRACT

In this paper deals with methods for optimal selection of Design Characteristics (DCs) in ship design have been studied. Numerical optimization and Quality Function Deployment(QFD) have been combined in a computer model based simulation and optimizationapproach, and tested as Decision Support Software (DSS) for the first phase of the designprocess. The approach is in particular targeted on preliminary ship design evaluations, feasibility studies and quick estimates of lifecycle costs and studies of design quality relative to aquantified quality framework. Simulations on the software models showed that the approachwas capable of evaluation and optimization of a large number of feasible design solutions,constrained by predetermined requirements. An optimal solution was found within a fewminutes for all the test runs, if the design goals were reasonably selected. If the selectedoptimization goals were in contradiction to each other the optimizer did however find acompromised solution, but the optimization algorithm spent more time.In addition a review of available methods for ship design optimization, relevant management strategies for Quality - and design - planning is provided. The generalbackground review serves as a base for the model development and supportselection of approach for software development. The DSS system is tested on a casestudy for optimization of LNG ships, and results of these tests, evaluation of theDSS and proposed optimization strategy is provided.

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