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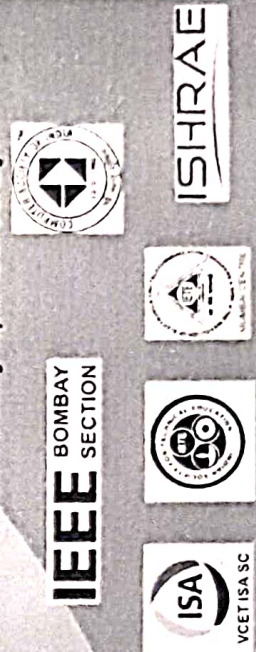
VIDYAVARDHINI'S  
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4<sup>TH</sup> APRIL, 2020



**Organized by:**  
Vidyardhini's College of  
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VNC - 2020 TASU

### About us:

Vidyavardhini means a Body committed to enhancement of Knowledge. Vidyavardhini was established as a registered society in 1970 by late Padmashri H. G. alias Bhausaheb Vartak for the noble cause of education in rural areas.

Vidyavardhini's College of Engineering and Technology, Vasai is located on the sprawling campus of Vidyavardhini, spread over an area of 12.27 acres. It is a short, two minutes walk from Vasai Road (W) Railway Station. The college is also accessible by road from Mumbai.

Vidyavardhini Society received approval from AICTE to start the new college of Engineering & Technology with effect from July, 1994. The college is affiliated to the University of Mumbai for the four year degree program leading to the degree of Bachelor of Engineering in six branches.

### Objective of VNC 2020 TASU

Technology has always been potential tool for simplifying the way we do things. Present time demands directing the technological advancements towards addressing societal challenges such as improving health care, education environment, sanitation, agriculture, smart city, etc., VNC 2020 TASU aims to provide an opportunity to researchers, academicians, Industrialist and students to interact and share their ideologies and contributions made for social upliftment with the aid of technological advancements.

### Call for paper

We welcome submission in following area

1. Sustainable Computing
  2. High Performance Computing
  3. High Speed Networking and Information Security
  4. Software Engineering and Emerging Technologies
  5. Mathematical, Experimental, Computational and AI, IoT Techniques in Mechanical Engg.
  6. Industrial Engg., ERP, MRP, SCM
  7. Renewable Energy Technologies
  8. Pollution control and Waste Management
  9. Advances in Structural engineering
  10. Present geotechnical practices
  11. Present practices in construction management
  12. Recent developments in Instrumentation, control and automation
  13. Embedded Systems, IoT and VLSI Design
  14. Optical and Wireless Communication for NGN
  15. Antenna and Microwave Devices
- Any other relevant topics

### Important Dates:

- Submission of full length paper  
15<sup>th</sup> Feb 2020
- Paper Acceptance Notification  
22<sup>nd</sup> Feb 2020
- Submission of Final Version of Paper  
29<sup>th</sup> Feb 2020
- Registration Deadline  
5<sup>th</sup> March 2020
- PPT Submission  
20<sup>th</sup> March 2020
- Conference  
4<sup>th</sup> April 2020

### Registration Fee Details:

Category of Delegates / Authors	Indian Authors & Delegates (in INR)
Full Time Students (UG)	1,500.00
Teachers/ Research Scholars/ PG students	2,500.00
Industry	3,500.00

### Publication Information

Proceedings of VNC - 2020 TASU will be published with ISBN number

1. Selected Papers will be published in International Journal of Information Technology, Published by Springer Nature, ISSN: 2511-2104 (Print Version), ISSN: 2511-2112 (Electronic Version)

2. All papers will be published in IJERT, ISSN: 2278-0181

### Paper Submission:

Paper submission should be made strictly via Easy Chair the submission link for VNC 2020 "TASU":

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**\*Best paper award  
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# Design Development and Fabrication of Preheating Chamber for Upset Forging

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**Abstract** - Forging is the process of forming the metal piece into the desired shape. This process is widely used in the industries for obtaining the desired shape of the metal. From developing simple shapes in earlier centuries with the simple hammers and anvil to developing complex shapes in the current times, there is a vast advancement in the forging process. Many types of forging processes are used in the industries such as impression die forging, cold forging, open die forging, etc. Most of the processes are carried out at 2300°F and more. A heating furnace is required for heating the metal piece to achieve the required temperature. For heating the metal pieces, we have designed and developed the direct resistance heating chamber.

**Keywords** - Resistance heating, heating coil, helical coil, insulation.

## 1. INTRODUCTION

Forging is the process of forming the metal piece into the desired shape. This process is widely used in the industries for obtaining the desired shape of the metal. The properties generated in the product by the process, such as acceptable dimensional accuracy, higher strength to weight ratio, superior microstructure, etc., make the forging process attractive. Other attributes such as faster processing and low material wastage, push down the cost of production of complex-shaped parts.

Upset forging is used to increase the thickness or the bar's diameter and hence reduce its length. This type of method is only used in some of the cases such as in forming the bolt head, etc.

In this process, the area which is to be upset is heated locally and the rest of the area is quenched in water so that the other area does not get affected by the process. This type of process is done very carefully and it is kept

in mind that the other part of the material does not get bent or deformed.

For heating, the metal rods induction machines are used in the industries. The setup of these machines is complex to understand, initial as well as the maintenance cost is also high and the power consumed is also higher. This setup will overcome these drawbacks of the induction machines. This paper proposes the setup of the resistance heating chamber which has simple operating conditions, lower and affordable rates with less power consumption.

## 2. LITERATURE REVIEW

In recent times, as we know that electricity is one of the major sources of available energy. So, electric-based process heating systems are producing methods that use electricity as its input source to produce or transform the product through the heat produced by this process. [1] An electric-based heating system is used in industry as they are controllable, clean, and efficient. In some cases, this system is selected for their unique technical capabilities while for some electricity or other fuel price is the deciding factor. So, now new systems and equipment must be made based on this system. [1]

### A. Resistance Heating:

Resistance heating process is one of the simplest electric-based methods for heating of metals and non-metals. This process gives efficiency close to 100% and the operating temperature can exceed 3600°F. There are two basic types of this process;

- a) Direct Resistance Heating
- b) Indirect Resistance Heating

Many different applications are there where resistance heating is used. These same operations can also be carried out by a variety of fuel-based processes as well



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**27<sup>th</sup> June, 2020**

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**ISHRAE**

This certificate is presented to  
**Tusharkumar Raut**  
 of  
**VCET, Vasai Road (West)**



for presenting paper titled  
**NTASU 1023 Design Development & Fabrication of preheating chamber for upset forging.**  
 in the Vidyavardhini's National conference 2020 "Technical Advancements for  
**Social upliftments"** organised by Vidyavardhini's College of Engineering and  
 Technology, Vasai held on 27<sup>th</sup> June, 2020

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