

**Mechanical Engineering Department**  
**NK Orchid College of Engineering and Technology Solapur**  
**Paper Authored to Industries**

**The Projects we have received from different Industries were successfully completed and some of them were deployed in the industry. All the Project report, data and even papers related to testing were given to the Industry Mentors. Some of the data has also been published in the Journal Papers. Some of the Industry Sponsored report index along with sponsorship is presented here.**

## 1. Breakdown & Cycle Time Analysis of Weld Shop

SHOT ON OPPO



HR / 2021 / 99996262 20.07.2021

### CERTIFICATE

This is to certify that **Mr. Ranjeet Itkar** a student of **N.K. Orchid College of Engineering and Technology, Solapur** has successfully completed his Project at TATA Motors Ltd, Pune from **21.01.2021** to **20.07.2021**.

During the above period, he was placed in our "**Altroz Weld Shop**" where he carried out a project titled:

**Breakdown and Cycle Time Analysis of Weld shop**

The candidate was found to be enthusiastic and observant during his short stint in TATA Motors, Pune. His performance has been assessed as **Very Good**.

For Tata Motors Ltd

  
Manoj Raghunath Yadav  
Deputy General Manager (Human Resource)

**TATA MOTORS LIMITED**  
Passenger Vehicle Business Unit Sector No 15 & 15A PCNTDA Chikhali, Pune Pin 411 062  
Tel 91 20 66 13 1111  
www.tatamotors.com CIN L28920MH1945PLC004520  
Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001

A  
Internship Report  
On  
**BREAKDOWN AND CYCLE TIME ANALYSIS OF WELD SHOP**

At  
  
**TATA MOTORS LIMITED (PVBU), Pune.**

SUBMITTED BY

**MR. ITKAR RANJEET ATUL**

UNDER THE GUIDANCE OF

**Dr. B. K. Sonage**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)

2020-2021



### CERTIFICATE

This is to certify that content of Internship report entitled “ **BREAKDOWN AND CYCLE TIME ANALYSIS OF WELD SHOP** ” is a Bonafide work carried out under my guidance and supervision, by **Ranjeet Atul Itkar** in partial fulfillment of the requirement for the Bachelor degree in Mechanical Engineering.

**Dr. B. K. Sonage**  
Guide

**Dr. S. S. Metan**

H.O.D.

Mechanical Engg. Dept.NKOCET, Solapur.

Mechanical Engg. Dept.NKOCET, Solapur.

**Dr. J. B. Dafedar**

Principal

NKOCET, Solapur.

2. Conduct gear cutting trials in PE 150 CNC hobbling machine and Freeze the parameters for double spur gears

SHOT ON OPPO



Date: 14<sup>th</sup> May 2021

**TO WHOM SO EVER IT MAY CONCERN**

This is to certify that **Mr. Vedant Katame** student of Fourth Year, B.Tech (Mechanical) from N.K. Orchid College of Engineering & Technology, Solapur has successfully completed his internship in our **Production Engineering Department** from **12<sup>th</sup> February 2021 to 11<sup>th</sup> May 2021.**

During the above period, we found him sincere and hardworking.

We wish him all the best in his future endeavors.

For Force Motors Ltd.

A handwritten signature in black ink, appearing to read 'Rmh', with a stylized flourish.

**Ramchandra Honap**  
Head HR

**FORCE MOTORS LIMITED**

CIN L34102PN1958PLC011172

Regd. Office : Mumbai-Pune Road, Akurdi, PUNE – 411 035, INDIA. Tel. : (+91) 20 2747 63 81  
Visit us at : [www.forcemotors.com](http://www.forcemotors.com)

A  
PROJECT REPORT

ON

Conduct gear cutting trials in PE 150 CNC hobbing machine and  
Freeze the parameters for double spur gears

AT



Akurdi, Pune -411035

SUBMITTED BY

**Mr. VEDANT VYANKATESH KATAME**

DEPARTMENT OF MECHANICAL ENGINEERING

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY,  
SOLAPUR 413002



### **3. Design & Development of 2-Seater Solar Vehicle**

**A**

**PROJECT REPORT**

**ON**

**DESIGN AND DEVELOPMENT OF 2-SEATER SOLAR VEHICLE**

**SUBMITTED BY**

**Mr. PARTH N. LOKHANDE**

**Miss. SUPRIYA A. GAVALI**

**Mr. NISHIKANT C. DHERE**

**Miss. VIDYA N. NAMA**

**Mr. SHAILESH N. KANDKUR**

**UNDER THE GUIDANCE OF**

**Dr. SHRINIWAS.S. METAN**



**DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002**

**(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)**

**2020 – 2021**

## 4. Design & Development of Sitting Pad Aasan to Reduce Back Pain

### SPONSORSHIP LETTER



Phone : (0217) 2302678  
Fax : (0217) 2302678  
E-mail : endolite@solapur@yahoo.com



**Niramay**  
Rehab

98, Rukmini Residency, Waman Nagar, Jule Solapur, Solapur - 413 004

Endolite Prosthetic & Orthotic Centre

Date : 05/08/2021

To,  
Head of Department,  
Mechanical Engineering,  
N. K. Orchid College of Engineering & Technology, Solapur.

**Subject:** Intellectual Property Support for AASAN.

Respected Sir,

We would like to inform you that, we are providing Intellectual Property Support to the project entitled "**Design & Development of Sitting Pad AASAN to Reduce Back Pain**" to following students for transforming our basic idea into an impressive outcome under the guidance of Prof. Vaibhav Kulkarni.

1. Siddheshwar Madole,
2. Vishwesh Patil,
3. Rushikesh Lagali.

Thanking you.

Dr. Sandeep Bhagwat  
Niramay Rehab, Solapur.

**NIRAMAY REHAB**  
Plot No. 98, Rukmini Residency,  
Waman Nagar, Jule Solapur.  
Solapur. ☎- 2302678



A  
PROJECT REPORT  
ON  
DESIGN AND DEVELOPMENT OF SITTING PAD AASAN TO REDUCE  
BACKPAIN

SUBMITTED BY

Mr. SIDDHESHWAR IRANNA MADOLE  
Mr. VISHWESH BASAVARAJ PATIL  
Mr. RUSHIKESH MAHADEO LAGALI

UNDER THE GUIDANCE OF

Prof. V. P. KULKARNI



DEPARTMENT OF MECHANICAL ENGINEERING

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002

(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)


2020 – 2021

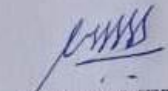
## CERTIFICATE

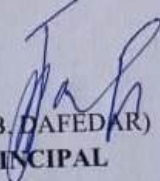
This is to certify that the project entitled **DESIGN AND DEVELOPMENT OF SITTING PAD AASAN TO REDUCE BACK** has been completed by following students of B.Tech. Final Year (MECH.) class in satisfactory manner under my guidance.

**Mr. SIDDHESHWAR IRANNA MADOLE**  
**Mr. VISHWESH BASAVARAJ PATIL**  
**Mr. RUSHIKESH MAHADEO LAGALI**

The project is found to be complete in partial fulfillment for the award of B.Tech. of Mechanical Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.

  
(Prof. V. P. KULKARNI)  
**PROJECT GUIDE**

  
(Dr S. S. METAN)  
**HOD**


  
(Dr. J. B. DAFEDAR)  
**PRINCIPAL**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR -413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)  
2020 - 2021

## 5. Design & Development Rust Cleaning Machine

AN SHOT ON OPPO

  
AN ISO 9001: 2015 Company

Office : 2601541, 2601542  
Chairman (Res.) : 2318115  
M.D. (Res.) : 2603423  
Fax No. : 0217 - 2601543  
E-Mail : shreesiddhask@siddheshwarugars.com  
Web Site : www.siddheshwarugars.com

Regd. No. MSCS / CR / 1258 / 2016, Date : 23 / 03 / 2016

**श्री सिध्देश्वर सहकारी साखर कारखाना लि ; कुमठे, सोलापूर**  
**Shree Siddheshwar Sahakari Sakhar Karkhana Ltd; Kumathe.**  
Post : Tikekarwadi, Tal : North Solapur, Dist : Solapur (Maharashtra). Pin : 413224  
(Registered Under Multi-State Co-oprative Societies Act-2002 )

**DHARMRAJ A. KADADI**  
Chairman

**RAVINDRA B. PATIL**  
Managing Director

SSSSK/HR/ 1372/2021-2022

Date. 21/08/2021

To,  
THE PRINCIPAL/HOD,  
NAGESH KARAJAGI ORCHID COLLEGE OF  
ENGINEERING & TECHNOLOGY, SOLAPUR.

Kind Attn:Dr S.S.METAN.(HOD MECH)  
Prof.A.S.KASHID (Project Guide)

Subject : The Project "Design and Development of Horizontal Axis Rust  
cleaning Machine ."

Respected sir,

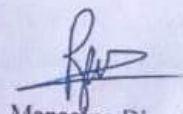
The Students of your college NAGESH KARAJAGI ORCHID COLLEGE  
OF ENGINEERING & TECHNOLOGY, SOLAPUR. from Mechanical  
Engineering Department they are completed the six months internship and project  
on "Design and Development of Horizontal Axis Rust cleaning Machine ."

We have Provided them technical as well as Financial Sponsorship for the project.  
During semester II for the AY 2020-2021 (from 6 Jan 2021 to 10 Jul 2021) Which  
will helpful for Mechanical Engineering Department.

The Students are :

- 1) Virpaksh Prakash Kore
- 2) Biresh Suryakant Metagar
- 3) Nasreen Sikandar Shaikh
- 4) Nitin Chandrashekhar Joge
- 5) Navinkumar Dattaray Dubasi

Thanking You,

  
Managing Director

Scanned with CamScanner

A  
Internship Report on  
**“DESIGN AND DEVELOPMENT RUST CLEANING  
MACHINE”**

SUBMITTED BY

MISS. NASREEN SIKANDAR SHAIKH  
Mr. VIRPAKSH PRAKASH KORE  
Mr. BIRESH SURYAKANT METAGAR  
Mr. NITIN CHANDRASHEKHAR JOGE  
Mr. NAVINKUMAR DATTATRAY DUBASI

UNDER THE GUIDANCE OF

Dr. B.K. SONAGE

&

Prof. A.S. KASHID



Department of Mechanical Engineering

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR-413002  
(AFFILIATED TO DBATU UNIVERSITY, LONERE)

2020-2021

### CERTIFICATE

This is to certify that the Internship Report entitled **Design and Development of rust cleaning machine** has been completed by following student of B.Tech (MECH) class in satisfactory manner under my guidance

**Miss. Nasreen Sikandar Shaikh**

**Mr. VIRPAKSH PRAKASH KORE**

**Mr. BIRESH SURYAKANT METAGAR**

**Mr. NITIN CHANDRASHEKHAR JOGE**

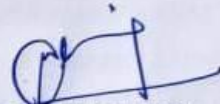
**Mr. NAVINKUMAR DATTATRAY DUBASI**

The project is found to be complete in partial fulfillment for the award of Degree of Bachelor of Mechanical Engineering of DBTU University, Lonere.



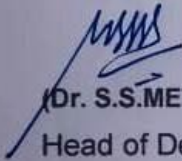
**(Dr. B.K. SONAGE)**

PROJECT GUIDE



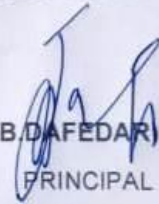
**(Prof. A.S. KASHID)**

PROJECT GUIDE



**(Dr. S.S. METAN)**

Head of Department



**(Dr. J.B. DAFEDAR)**

PRINCIPAL



Department of Mechanical Engineering  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR-413002  
(AFFILIATED TO DBATU UNIVERSITY, LONERE)  
2020 – 2021

6. Design & Fabrication of Plate Type Heat Exchanger for Dairy Factory at Aakash Refrigeration and Engineering Services PVT.LTD , Solapur.

## AAKASH FABRICATIONS

Manufacturing of Plate Heat Exchanger, Milk Pasteuriser plants

Date - 14.06.2021

Ref.:- AF / NK CET – SOLAPUR / 2021 – 22

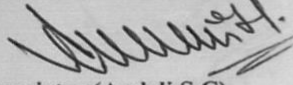
### CERTIFICATE

This is to certify that **Mr. Vivek Ramchandra Patil** student of Fourth Year B. Tech ( Mechanical ) from **N. K. Orchid College of Engineering & Technology Solapur** has successfully completed his **Internship** in our Company from the date **01.02.2021** to **31.05.2021**.

During the above period, we found him sincere & hardworking.

We wish him all the best in his future endeavors.

For Aakash Fabrications



Proprietor (Andeli S.C)



Factory : C - 116/117, M.I.D.C. Chincholi, Tal. Mohol, Dist. Solapur - 413 255. Maharashtra.  
Off : 1186, (1070-A), North Kasba, Tilak Chowk, Solapur - 413007. Maharashtra - India.

Tel. : 0217-2622243 Cell : 9422463729, 9890663729

E-mail : aakashref@yahoo.co.in : spr\_sca@bsnl.in

# AAKASH FABRICATIONS

Manufacturing of Plate Heat Exchanger, Milk Pasteuriser plants

Date - 14.06.2021

Ref.:- AF / NK CET - SOLAPUR / 2021 - 22

## CERTIFICATE

This is to certify that Mr. Rahul Rajendra Talwar student of Fourth Year B. Tech ( Mechanical ) from N. K. Orchid College of Engineering & Technology Solapur has successfully completed his Internship in our Company from the date 01.02.2021 to 31.05.2021.

During the above period, we found him sincere & hardworking.

We wish him all the best in his future endeavors.

For Aakash Fabrications



Proprietor (Anand S.C)



Factory : C - 116/117, M.I.D.C. Chincholi, Tal. Mohol, Dist. Solapur - 413 255. Maharashtra.  
Off : 1186, (1070-A), North Kasba, Tilak Chowk, Solapur - 413007. Maharashtra - India.

Tel. : 0217-2622243 Cell : 9422463729, 9890663729

E-mail : aakashref@yahoo.co.in : spr\_sca@bsnl.in

A

**PROJECT REPORT**

**ON**

**“DESIGN AND FABRICATION OF PLATE TYPE HEAT EXCHANGER FOR  
DAIRY FACTORY AT AAKASH REFRIGERATION AND ENGINEERING  
SERVICES PVT.LTD. SOLAPUR”**

SUBMITTED BY

**Mr. VIVEK RAMCHANDRA PATIL  
Mr. RAHUL RAJENDRA TALWAR**

UNDER THE GUIDANCE OF

**Dr. M. S. DAFEDAR**



DEPARTMENT OF MECHANICAL ENGINEERING

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002

(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)

2020 – 2021



## 7. Design of Fire Protection System for Industrial Facility

OdHO NO JOHS W

### INTERNSHIP CONFIRMATION LETTER

**risen** enterprisesrisen@gmail.com

Mr. Pavan Sanga  
2389 I Group Vidi Gharkul  
Solapur- 413005

Date: 23-03-2021

Sub.: Regarding your internship confirmation.

Dear Pavan,

We would like to confirm that your application for internship as a role of Design Trainee has been accepted. Here are the terms of internship while working with the company.

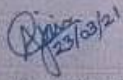
1. Duration of internship will be from 25th Mar 2021 to 24th Sep 2021.
2. You will be designated as Trainee.
3. You will not be entitled or any other benefits from the company during this period.
4. During internship, you are expected to abide Code of Conduct prescribed by the company for all the employees.

You are requested to confirm your acceptance to this letter through your return mail.

Please feel free to contact us in case of any queries you might have. Wishing you good luck for your future.

Thank you.

Sincerely,  
For Risen Enterprises

  
23/03/21  
Authorised Signatory

91 962893934 Registered Address: Gulmohar Bazar, Washim - 445005

A  
INTERNSHIP REPORT  
ON  
DESIGN OF FIRE PROTECTION SYSTEM FOR INDUSTRIAL FACILITY

SUBMITTED BY  
Mr. PAVAN RAJU SANGA

UNDER THE GUIDANCE OF  
Dr. B. K. SONAGE




DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR 413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,  
LONERE)  
2020–2021

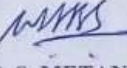
## CERTIFICATE


This is to certify that the internship report entitled **DESIGN OF FIRE PROTECTION SYSTEM FOR INDUSTRIAL FACILITY** has been completed by following student of B.TECH Final Year (MECH) class in satisfactory manner under my guidance.

**Mr. PAVAN RAJU SANGA**

The project is found to be complete in partial fulfilment for the award of B. TECH of Mechanical Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.

  
**Dr. B. K. SONAGE**  
GUIDE

  
**Dr. S. S. METAN**  
HEAD OF DEPARTMENT

  
**Dr. J. B. DAFEDAR**  
PRINCIPAL



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR 413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,  
LONERE)  
2020-2021

## 8. Failure Analysis of Air Conditioning Blower

### CERTIFICATE

**Paei**

A joint venture of Spal Italy

JR/TD/2021/0380

24.07.2021

### CERTIFICATE

This is to certify that **Mr. Sabeer Shiledar** a student of **N. K. Orchid College of Engineering & Technology, Solapur** has successfully completed his project at **Pee Aar Exim Private Ltd Pune, Maharashtra** from **28/02/2021** to **25/06/2021** as a part of the course curriculum.

During the above period, he was placed in our "Production Engineering" where he carried out a following project titled.

#### **Failure Analysis of Air Conditioning Blower**

He has successfully completed the training and submitted a report with his overall performance being **Excellent**.

*Sudhir Patil*

**Sudhir Patil**  
General Manager (Human Resource)

Registered Office: Plot No. 30, WMDC, Kharabwadi, Ambethan Rd, Chakan, Maharashtra  
410501  
Tel. 91-2135-253208

A  
PROJECT REPORT  
ON  
FAILURE ANALYSIS OF AIR CONDITIONING BLOWER

SUBMITTED BY

**Mr. SABEER A.RASHID SHILEDAR**

UNDER THE GUIDANCE OF

**Prof. S. K. KHILLARE**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR -413002

(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)

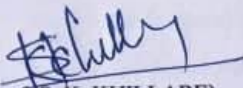
2020 – 2021

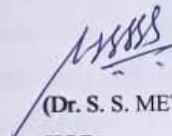
## CERTIFICATE

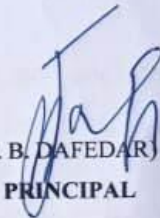
This is to certify that the project stage-I entitled **FAILURE ANALYSIS OF AIR CONDITIONING BLOWER** has been completed by following students of B.Tech. Final Year (MECH.) class in satisfactory manner under my guidance.

**Mr. SABEER A.RASHID SHILEDAR**

The project is found to be complete in partial fulfilment for the award of B.Tech. Of Mechanical Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.

  
(Prof. S. K. KHILLARE)  
**PROJECT GUIDE**

  
(Dr. S. S. METAN)  
**HOD**

  
(Dr. J. B. DAFEDAR)  
**PRINCIPAL**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR -413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)  
2020 – 2021

## 9. Implementation of Total Productive Maintenance at Rucha Engineers PVT. Ltd. P-I Aurangabad

K-249 A, MIDC Waluj,  
Aurangabad-431136 (M.S.) India.



HCM/2021-22  
31<sup>st</sup> May, 2021.

### CERTIFICATE

This is to certify that **Mr. Datta Laxman Tandale** from **N.K. Orchid College of Engineering & Technology, Solapur** has successfully completed his **Internship** in our organization from the date of **01<sup>st</sup> March 2021** to **31<sup>st</sup> May, 2021**.

During the tenure of project, we found him sincere & hardworking.

We wish him all success in his future endeavors.

For Rucha Engineers Pvt. Ltd.

A handwritten signature in black ink, appearing to read 'Datta Laxman Tandale', is written over a horizontal line.

Authorized Signatory



25 YEARS  
AND STILL  
GROWING

#### **RUCHA ENGINEERS PVT LTD**

Regd. Office : 102, OM Residency, 850/7,  
Bhandarkar Institute Road, Shivaji Nagar,  
Pune 411 004 (M.S.) India  
Corp. Office: K-249 A, MIDC Waluj,  
Aurangabad - 431 136 (M.S.) India.  
repl@ruchagroup.com | www.rucha.co.in  
CIN U29299PM1997PTC018938

## 10. Modeling & Development of Industrial heater to Increase Life

AI SHOT ON OPPO

### GURUMAULI POWER CONTROL



J Block, PAP37, office No.1, indrayani Sweet corner, MIDC Bhosari Pune -411026

E Mail – gmpowercontrols@gmail.com web Site –www.gurumaulipowercontrol.com

Date 14.08.2021

## CERTIFICATE

This is to Certify that Ms. Mansi Shankar Jadhav a Student of Mechanical Engineering from Nagesh

Karajagi Orchid college of Engineering and Technology, Solapur has been Successfully Completed the Plant Training duration from Dt. 01.02.2021 to 26.07.2021

During the Period of Plant training we found that she is hard worker & having good Communication Skills.

For Gurumauli Power Controls Pvt. Ltd.



Mrs. Manda Datta Jamdade

Director

Mob.No. +919011246031

Place :- Pune Date -14.08.2021



2021

A  
INTERNSHIP REPORT  
ON  
MODELING AND DEVELOPMENT OF INDUSTRIAL HEATER TO  
INCREASE ITS LIFE

SUBMITTED BY

**Ms. MANSI SHANAKR JADHAV**

UNDER THE GUIDANCE OF

**DR. B. K. SONAGE**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE) 2020 – 2021

**CERTIFICATE**

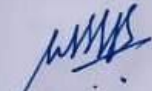
This is to certify that the internship entitled "MODELING AND DEVELOPMENT OF INDUSTRIAL HEATER TO INCREASE ITS LIFE" has been completed by following students of B.Tech. Final Year (MECH.) class in satisfactory manner under our guidance.

**MS. MANSI SHANKAR JADHAV**

The project is found to be completed for the award of B.Tech. of Mechanical Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.



(DR. B. K. SONAGE)

**PROJECT GUIDE**

(Dr. S. S. METAN)

HOD



(Dr. J. B. DAFEDAR)

PRINCIPAL



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.

NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR -413002

(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,  
LONERE) 2020 - 2021

## 11. Cost Analysis of Color Coating Line in a Steel Processing Plant



A-10/1 & 10/2 MIDC Industrial Area,  
Kalmeshwar - 441 501,  
Dist. Nagpur, Maharashtra,

Phone : (07118) 271401-06  
Fax: (07118) 271128  
Website : www.jsw.in

CIN No. U27100MH1985PLC037346

26<sup>th</sup> July 2021

### CERTIFICATE

*This is to certify that under mentioned student has undergone Internship / Industrial Training in our organization and successfully completed the same.*

Name of the student : **Mr. Shrinath Sangmeshwar Kalshetti**  
B.Tech (Final year) – Mechanical

Name of College : N K Orchid College of Engineering &  
Technology, Solapur

Duration of Training : 18.01.2021 to 17.07.2021

*We are happy to note the keen interest shown by the student during the training period.*

*Best Wishes for a bright future.*

*For JSW Steel Coated Products Limited*

Authorized Signatory



Part of O.P. Jindal Group

Regd. Office : JSW Centre, Bandra Kurla  
Complex, Bandra (East), Mumbai 400 051  
Phone : 022 42861000  
Fax : 022 42863000

**COST ANALYSIS OF COLOUR COATING LINE IN A STEEL PROCESSING PLANT**

A

**PROJECT STAGE-II REPORT  
ON  
COST ANALYSIS OF COLOUR COATING LINE IN A STEEL  
PROCESSING PLANT.**

SUBMITTED BY

**Mr. Shrinath Kalshetti**

UNDER THE GUIDANCE OF

**Dr. N. R. Patil**



DEPARTMENT OF MECHANICAL ENGINEERING

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002

(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)

2020 - 2021

**COST ANALYSIS OF COLOUR COATING LINE IN A STEEL PROCESSING PLANT****CERTIFICATE**

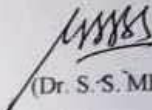
It is to certify that the project stage-II entitled **Cost Analysis of Colour Coating Line in a Steel Processing Plant** has been completed by following students of B.Tech. Final Year (MECH.) class in satisfactory manner under my guidance.

**Mr. Shrinath S. Kalshetti**

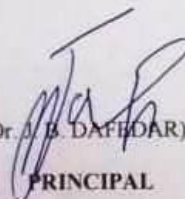
The project is found to be complete in partial fulfillment for the award of B.Tech. Of Mechanical Engineering of Dr. Babasaheb Ambedkar Technological University, Lonere.

  
(Dr. N. R. PATIL)

**PROJECT GUIDE**

  
(Dr. S. S. METAN)

**HOD**

  
(Dr. A. B. DAFFADAR)

**PRINCIPAL**



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR -413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,  
LONERE) 2020 - 2021

## 12. Spherical Turning of Differential Housing



**SPICER®**

*Drivetrain Products*

**SPICER INDIA PRIVATE LIMITED**

29 Milestone, Pune-Nasik Highway

Village : Kuruli, Tal. : Khed, Dist. : Pune - 410 501

Tel : +91 2135 616100 Fax : +91 2135 616122

CIN : U34300MH1993PTC073227  
Web Site : [www.spicerindia.in](http://www.spicerindia.in)

Date : 01 July' 2021

### CERTIFICATE

This is to certify that **Mr. Parmeshwar Gulchand Bansode** a student of "N.K. Orchid college of Engineering & Technology" Solapur has completed his Internship in our organization during the period of 1<sup>st</sup> Jan'2021 to 30<sup>th</sup> June'2021. He has worked in the capacity as an Intern at our company Spicer India Pvt Ltd in Chakan, Pune for **6 months**.

He has worked in "Production Engineering" Department under the guidance of Mr. Shadiq Vadapalli (Sr. Engineer- Production Department).

During his internship he has taken interest and successfully completed the production projects. He has studied the process thoroughly and completed the project and training very well, within the time given to him.

During his stay with us we found him to be sincere and hardworking.

We wish him all the best for his future career.

For Spicer India Private Limited

**Ms. Anushka Lakam**

**Plant HR**

A  
Internship Report  
On  
"SPHERICAL TURNING OF DIFFERENTIAL HOUSING"

At  
SPICER INDIA PVT. LIMITED, Pune.

SUBMITTED BY  
MR. BANSODE PARMESHWAR GULCHAND

UNDER THE GUIDANCE OF  
Dr. B. K. Sonage




DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.  
NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING &  
TECHNOLOGY, SOLAPUR 413002  
(AFFILIATED TO DR. BABASAHEB AMBEDKAR TECHNOLOGICAL  
UNIVERSITY, LONERE)

2020-2021



## CERTIFICATE


This is to certify that content of internship report entitled "SPHERICAL TURNING OF DIFFERENTIAL HOUSING" is a Bonafide work carried out under my guidance and supervision, by Parmeshwar Bansode in partial fulfillment of the requirement for the Bachelor degree in Mechanical Engineering.

  
Dr. B. K. Sonage

Guide

Mechanical Engg. Dept.

NKOCET, Solapur.

  
Dr. S. S. Metan

H.O.D.

Mechanical Engg. Dept.

NKOCET, Solapur.

  
Dr. J. B. Dafedkar

Principal

NKOCET, Solapur.



# 13. Time & Motion Study for Camshaft Manufacturing

## TIME AND MOTION STUDY FOR CAMSHAFT MANUFACTURING



where Passion  
meets Performance

Ref HR/DME/EIN 6381

Date: 06/02/2021

To,  
Mr. Navin Gurucharan Pula  
256 Gala, O3, municipal Colony  
Raviwar peth,  
Solapur

Subject - Appointment as 'Team Member' on Fixed Term Employment Basis for 2 years.

This has reference to your application and the subsequent interview you have had with us. We are pleased to appoint you on a contract assignment on fixed term employment basis as "Team Member" in Machine Shop Department, on the following terms and conditions.

A. Remuneration-You will be paid salary as below:

Sr No	Salary Components	Amount(Rs)	Indirect Benefits	Amount(Rs)
1	Basic	7100	PF	1495
2	DA	4732	Bonus	986
3	HRA	592	ESI / Health Insurance	424
4	Attendance Incentive	625		
	<b>Total 1</b>	<b>13049</b>	<b>Total 2</b>	<b>2905</b>
	<b>CTC PM (1+2)</b>		<b>15953</b>	
	<b>CTC PA</b>		<b>191438</b>	

B. Deliverable-You will be responsible for the 100% compliance of the routine task & Responsibilities of the position

C. Transfer-Your services can be transferred from one job to another, one location to Another, holding company or to any of its subsidiary/associate/sister company or vice versa anywhere in India, whether existing at present or to be set up in future. Management reserves the right of changing the scope and deliverable of your work or your posting based on business exigencies.

D. Terms -

1. **Contract Period** - This contract will be for a period of Two Years i.e. from 06<sup>th</sup> Feb 2021 till 05<sup>th</sup> Feb 2023 (after closing of duty hours).The said agreement may be renewed further, if your performance found satisfactory in preceding year and subject to vacancy.
2. **Provident Fund** -You will participate in the PF Scheme as applicable to employees of the Company.
3. **Safety**-During your presence in Foundry or Machine Shop as and when job demands, you shall follow all safety rules and regulations and have to obey safety instructions given by superior and SOP's etc.
4. **Duty Timings**-You shall follow the shift timings of the company in which ever shift you are deployed in by your department supervisor / manager. You shall report 20 minutes in advance before starting of your duty shift. You are bound to record your IN/OUT punching time in whatever formats you are asked to do so. The calculation of your day's salary shall be derived from this IN/OUT time which should be min 8.00 hours complete to get a day's salary.

Precision Camshafts Limited

☎ Solapur : DS MIDC, Chincholi, Solapur, India - 413255

☎ Solapur : E102 MIDC, Akkalkot Road, Solapur, India - 413006

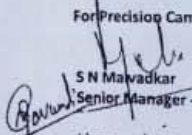
☎ Pune : 501/502, Kanchanban "B", Sunit Capital, Senapati Bapat Rd, Pune, India - 411016

SHOT ON OPPO

## TIME AND MOTION STUDY FOR CAMSHAFT MANUFACTURING

5. **Insurance-** Company will cover you with applicable employee compensation policy for period of your contract tenure.
6. **Transport Facility-** You may avail the company provided subsidized bus transport facility in case your residence falls on the shift transport arrangement, else you shall make your own arrangement of transport for commuting to & fro for duty. No separate amount or claim shall be entertained for this.
7. **Travel-** Whenever you are required to undertake travel on company work, you will be reimbursed travel expenses as per company rules applicable to your cadre.
8. **Performance-** You must effectively perform to ensure results. Your Performance would be reviewed periodically at the frequency of 3 months.
9. **Notice Period-** While on this fixed term employment period, this employment may be terminated by either side by giving 30 days clear notice. However notwithstanding anything contained elsewhere, if the said termination is due to your actions involving moral turpitude or dishonesty in connection with the company's business, the Management reserves the right to terminate your services forthwith, without any notice and/or without any pay in lieu thereof.
10. **Other Work-**Your position with the Company calls for whole time employment and you will devote yourself exclusively to the business of the company. You will not take up any other work for remuneration (part time or otherwise) or work on advisory or honorary capacity, without written permission from the company.
11. **Absenteeism -**In case you are found absent up to 10 consecutive days without any lawful permission or authorization, it shall be deemed by the management that you have abandoned the job on your own accord & therefore your name would be struck off from the muster-roll.
12. **Confidential Information -**You will not, at any time, without the consent of the company disclose or divulge or make public except under legal obligation, and in which case you shall give reasonable notice to the company. Any information regarding company's affairs of administration or research carried out, whether the same may be confided to you or become known to you, in the course of your service or otherwise.
13. **Leave -**You will be entitled as per company policy.
14. **Reporting/ Placement -** You will work under general supervision of the Shift in-charge of functional head or under such person as may be nominated by the company.
15. **Dispute resolution and jurisdiction -**All dispute arising out of or in connection with this contract assignment shall be referred to and finally resolved by a sole arbitrator appointed by company.

For Precision Camshafts Limited

  
S N Mavadkar  
Senior Manager - HR

I have understood the terms and conditions mentioned herein above and I accept the same.

Read & Accepted - \_\_\_\_\_

A  
INTERNSHIP REPORT  
ON  
TIME AND MOTION STUDY FOR CAMSHAFT MANUFACTURING  
SUBMITTED BY  
Mr. NAVIN GURUCHARAN PULA

UNDER THE GUIDANCE OF  
Dr. B. K. SONAGE



DEPARTMENT OF MECHANICAL ENGINEERING

PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.

NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,

SOLAPUR 413002

(AFFILIATED TO DOCTOR BABASAHEB AMBEDKAR UNIVERSITY, LONERE)

2020-2021

**CERTIFICATE**

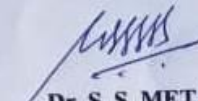
This is to certify that the report entitled **INTERNSHIP IN PRECISION CAMSHAFT PVT. LTD. ON TIME AND MOTION STUDY FOR CAMSHAFT MANUFACTURING**. From 5<sup>th</sup> February. has been completed by following student of B. TECH Final Year (MECH) class in satisfactory manner under my guidance.

**Mr. NAVIN GURUCHARAN PULA**

The project is found to be complete in partial fulfilment for the award of B. TECH of Mechanical Engineering of Dr. Babasaheb Ambedkar Technology University, Lanore.



**Dr. B. K. SONAGE**  
GUIDE



**Dr. S. S. METAN**  
HEAD OF DEPARTMENT



**Dr. J. B. DAFEDAR**  
PRINCIPAL



DEPARTMENT OF MECHANICAL ENGINEERING  
PRADNYA NIKETAN EDUCATION SOCIETY, PUNE.

NAGESH KARAJAGI ORCHID COLLEGE OF ENGINEERING & TECHNOLOGY,  
SOLAPUR 413002

(AFFILIATED TO DOCTOR BABASAHEB AMBEDKAR UNIVERSITY, LONERE)  
2020–2021

