



Business Club  
**IIT KHARAGPUR**

# CERTIFICATE

## OF COMPLETION

This certificate is proudly presented to

**Jahir Khan**

in acknowledgment of participation in the

### **Automobile & IC Engine Course**

with **Technophilia Summer Training** in association with **B-Club IIT Kharagpur**  
successfully completed during **April 2023**.

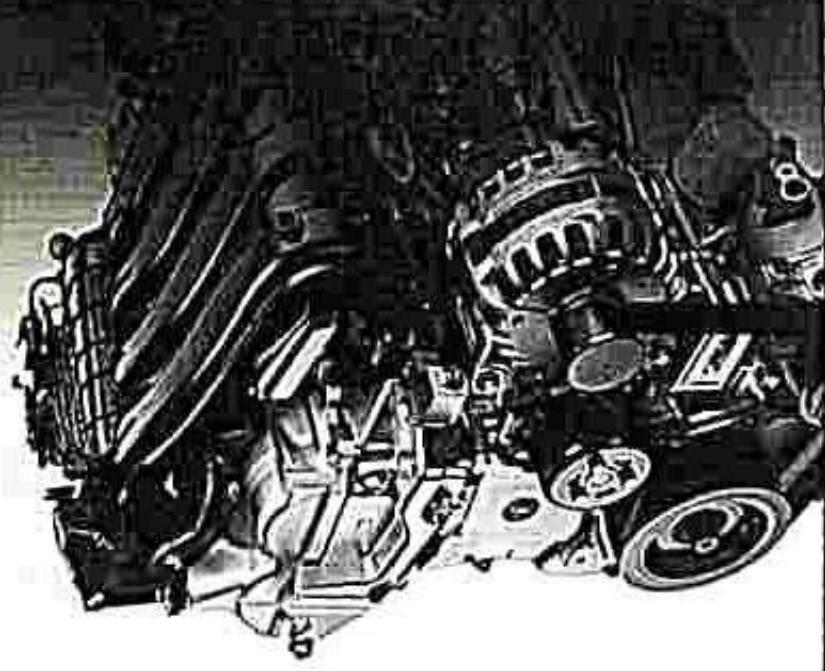
Mr. Mayank Arora  
Program Coordinator  
Technophilia Solutions

Certificate Number

**TP-ST-1114**

Mrs. Shilpa Mehta  
Chief Executive Officer  
Technophilia Solutions





**Introduction of  
BS6 Engine  
(Petrol & Diesel)**

## Dealing with BS6 - Diesel

---

### Exhaust After Treatment

#### LNT-Lean NOx Trap

- o Reduces NO<sub>x</sub>, HC & CO
- o Requires late fuel injection



#### DPF-Diesel Particulate Filter

- o Filters Carbon, Sulphur
- o Particles
- o Requires late fuel injection
- o Requires re-generation



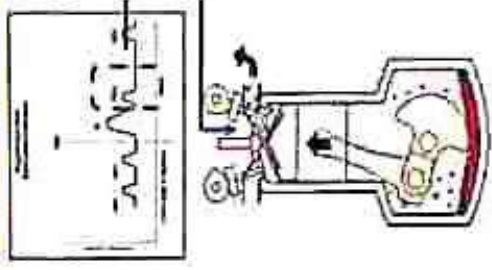
## Dealing with BS6 - Diesel

LNT-Lean NOx Trap

LNT catalyst doubles up as the DOC in LNT vehicles



Late Fuel Injection



# INTERNSHIP CERTIFICATE

April 16, 2023

To whom it may concern,

This certification proves that SUVENDU DAS has completed the Internship program at CAD Programming as a .SUVENDU DAS started joining the program from Sunday, March 12, 2023 until Sunday, April 16, 2023.

During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

Sincerely,

*Prasanna Kumar Shankar*  
PRASANNAKUMAR SHANKAR  
B.TECH, M.TECH, M.S, EMBA  
CEO

Maxpertise Technology Labs

April 16, 2023



## ACKNOWLEDGEMENT

I am highly grateful to **Mrs. Arpita Roy Choudhury, HOD (IPE Department)** for providing this opportunity to carry out one-month practical training at **INTERNSHALA**.

The constant guidance and encouragement received from **Mr. Kallash Borkar, Assistant Professor (IPE Department)** has been of great help in carrying out the project work and is acknowledged with reverential thanks.

I would like to express a deep sense of gratitude and thanks profusely to **Mr. Tushar Jha, Instructor**, without the wise counsel and able guidance, it would have been impossible to complete the report in this manner.

I would like to express gratitude to other faculty members of IPE department for their intellectual support throughout the course of this work.

Finally, I am indebted to all whosoever have contributed in this report

## Abstract

Software training is one of the requirements to be fulfilled in order to obtain the Bachelor's Degree in Technology. Each student needs to do software training in a recognized company of their respective domain. The students are compulsory to the training for duration 1 month which is intended for their exposure to the software industry. A well planned, properly executed and evaluated software training helps a lot in developing a professional attitude. It develops an awareness of software approach to problem solving, based on a broad understanding of processes. Besides software training build self confidence among students and let students know the technical knowledge and professionalism.

During software training at "Interenshafa", most of the theoretical knowledge gained during the course of studies was put to test. Various efforts and processes involved in designing of a component was studied and understood during the training. In our training I undertook course of AutoCAD.

The training gave me good experience from the view of implementing my theoretical knowledge in practical aspects. It gave me first-hand experience of working as an engineering professional. It helped me in improving my technical, interpersonal and communication skills, both oral and written. Overall, it is a great experience to have software training in such a reputed firm and I believe that it will help me in building a successful career.

## CONTENTS

- Introduction
- Benefits of AutoCAD
- AutoCAD Screen
- Methods to work in AutoCAD
- Drawing Units
- Dimension Style Manager
- Some Commands with Shortcut in AutoCAD
- Text Command
- Block Command
- Hatch Command
- Drawings made in AutoCAD
- Layout
- Drawing on Layout
- Isometric Drawing
- 3D Drawing
- 3D Drawing made in AutoCAD
- Conclusion



# Internship at CAD Programing

*Submitted as 6th sem in  
PROJECT -II (PW-ME681)*

*for  
the partial fulfillment of  
B. Tech in  
Mechanical Engineering*

Submitted by:

**AVIK PANJA**

University Rol- 26300721012



MAULANA ABUL KALAM AZAD  
UNIVERSITY OF TECHNOLOGY,  
WEST BENGAL



**Regent Education and Research Foundation**

**Affiliated to MAKAUT, West Bengal**

**Barrackpore, India 700121**

# INTERNSHIP CERTIFICATE

To whom it may concern,

This certification proves that AVIK PANJA has completed the internship program at CAD Programming as a intern. AVIK PANJA started joining the program from Wednesday, March 15, 2023 until Saturday, April 15, 2023.

During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

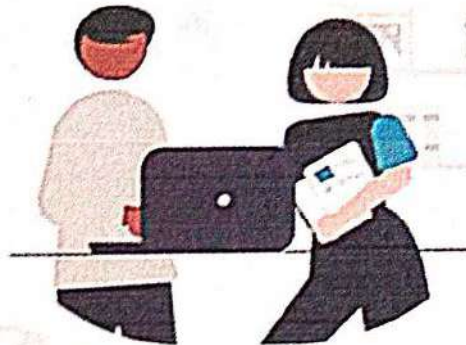
*Prasanna Kumar Shankar*

Sincerely,  
**PRASANNAKUMAR SHANKAR**  
B.TECH, M.TECH, MS, EMBA

CEO

Maxpertise Technology Labs

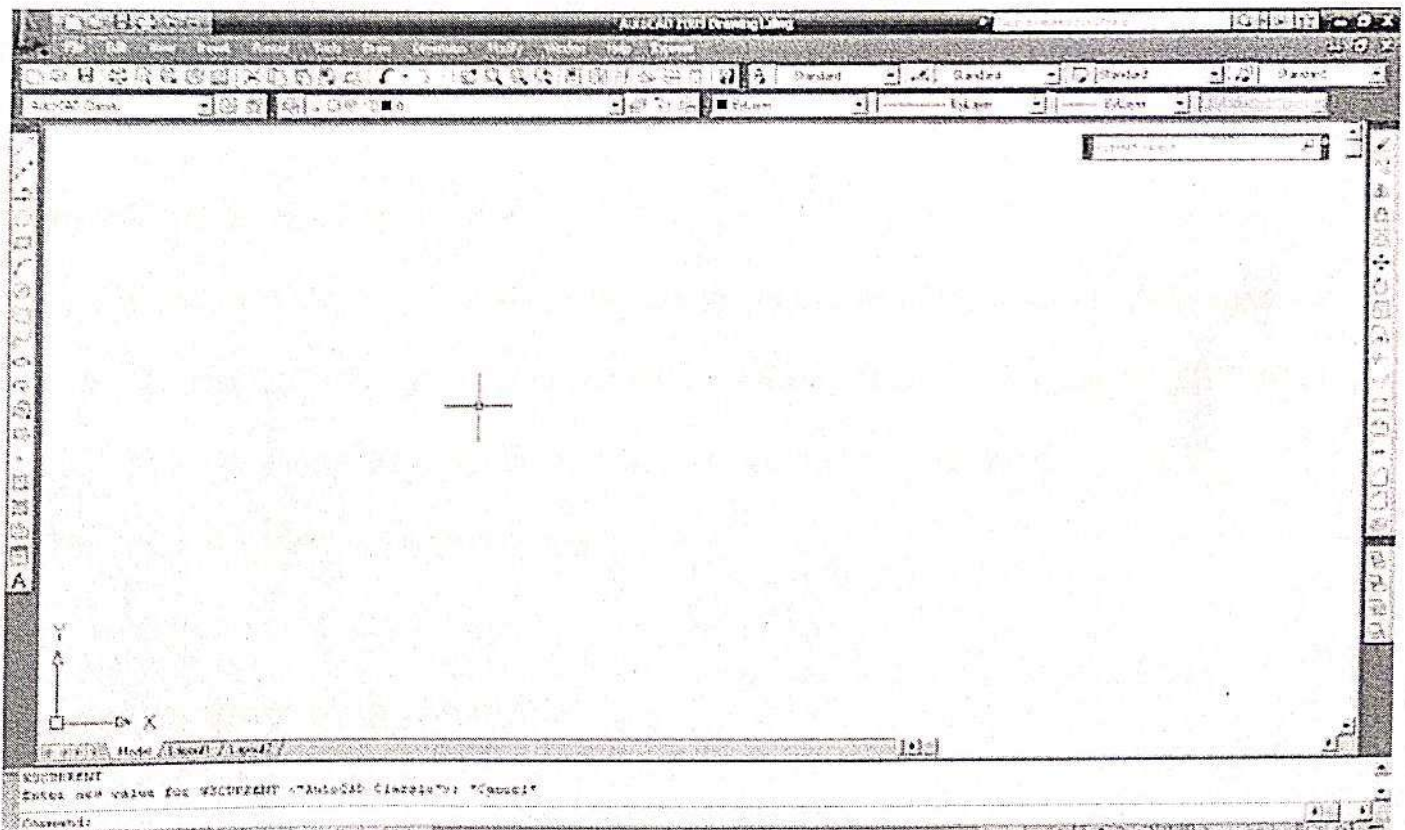
April 17, 2023



# AutoCad Basic Tutorial

# Launching AutoCad

1. Start
2. 3D and CAD
3. AutoCad



# Typing Commands

## Typing a Command

All AutoCAD commands can be typed in at the command line. Many commands also have one or two letter aliases that can also be typed as shortcuts to the commands.

1. Type the desired command at the command prompt.

Command : **LINE**

or

2. Type the command's alias. Command: **L**
3. Press **ENTER/Space** to end.
4. Type an option at the command prompt.

**TIP:** Many AutoCAD commands require you to press **ENTER** to complete the command. You know you are no longer in an AutoCAD command when you see a blank command line.

## Reissuing the Last Command

The last used AutoCAD command can be re-entered by one of the following three methods of **ENTER**. The **ENTER** key on the keyboard will always act as **ENTER**, the **SPACEBAR** and **RIGHT MOUSE** will act as enter most of the time (exceptions include placing **TEXT**).

1. Press the **ENTER** key on the keyboard

or

2. Press the **Space bar** on the keyboard.

or

3. Click the **right** mouse button.



**REGENT EDUCATION & RESEARCH**  
**FOUNDATION**

**NAME:- BISHAL KOAR**

**ROLL NO:- 26300721013**

**SUBJECT:- PROJECT II**

**TRADE:- MECHANICAL**

**YEAR:-3<sup>RD</sup>**

**SEMISTER:- 6<sup>TH</sup>**

**SUBJECT CODE:- PW-ME681**

**TOPIC NAME:-SUMMER TRAINING**



## **Company over view**

**Type: - Private**

**Authorized from: - TATA Motors**

**Name of shop: – TATA LEXICAN MOTORS  
(SHOWROOMS & WORKSHOP)**

**Industry : - Automobile (sales & service)**

## **ACKNOWLEDGEMENT**

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to (DEBTANU PATRA SIR) for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my special gratitude and thanks to TATA LEXICAN Motor's persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.



# ABSTRACT

---

It was a great opportunity for me to do One months internship in TATA LEXICAN MOTORS (A Unit of TATA MOTORS). The internship was concentrated on the car services. At the beginning of internship I had several queries in my mind regarding the different technologies used in TATA Motors and what skills are needed in organization. During my internship several queries are cleared by doing some activities. The objective of this internship is to gather information about the quick services and the major- minor problem that can be observed in day to day life. In the workshop, I have learnt the rules and safety instruction which helps me in understanding while working on cars. So, this internship was a great experience. I found out how much I am strong in automobile field. I gained new knowledge and skills and met many new people. I achieved many of my learning goals. I got insight into the work of an organization. The financing is an important factor and forces to be flexible in attitude and approach. I learned more about the problems which I have



TATA MOTORS

LEXICAN MOTORS

Authorized Dealers of Tata Motors

Regd. Office : Trinity Plaza, B/TA, Topika Road (South), Kolkata - 700 016 | Ph. : 033 4049-7777

## Certificate

*This is to certify that **BISHAL KOAR, C/O- BIKASH CHANDRA KOAR**  
Has completed successfully 18.01.2023 to 18.02.2023 apprenticeship from this  
organization.*

*We wish him/her all the success in life.*

Date: 22/02/2023

Place: Malda.

  
Signature

:: SHOWROOMS & WORKSHOPS ::

Lexican Motors, Prop. : Reliance Industrial Consortium Ltd., N.H.-34, Naldubi, Mangalbari, Malda - 732142 (W.B.)  
Ph. : 03513 260226 / 260226, Mob. : 9830800575 / 9830800577



**REGENT EDUCATION & RESEARCH**

**FOUNDATION**

**NAME:- SOUMYA BRATA DAS**

**ROLL NO:- 26300721014**

**SUBJECT:- PROJECT II**

**TRADE:- MECHANICAL**

**YEAR:-3<sup>RD</sup>**

**SEMESTER:- 6<sup>TH</sup>**

**Type: - Private**

**Authorized from: - TATA Motors**

**Name of shop: – TATA LEXICAN MOTORS  
(SHOWROOMS & WORKSHOP)**

**Industry : - Automobile (sales & service)**

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to (DEBTANU PATRA SIR) for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my special gratitude and thanks to TATA LEXICAN Motor's persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities

MOTORS). The internship was concentrated on the car services. At the beginning of internship I had several queries in my mind regarding the different technologies used in TATA Motors and what skills are needed in organization. During my internship several queries are cleared by doing some activities. The objective of this internship is to gather information about the quick services and the major- minor problem that can be observed in day to day life. In the workshop, I have learnt the rules and safety instruction which helps me in understanding while working on cars. So, this internship was a great experience. I found out how much I am strong in automobile field. I gained new knowledge and skills and met many new people. I achieved many of my learning goals. I got insight into the work of an

# Certificate

*This is to certify that SOUMYABRATA DAS, C/O- MRINMAY DAS  
Has completed successfully 18.01.2023 to 18.02.2023 apprenticeship from this  
organization.*

*We wish him/her all the success in life.*

# EXIDE INDUSTRY LIMITED

Durgachak, Haldia, East Midnapore, 721602



## INDUSTRIAL TRAINING REPORT

1<sup>ST</sup> to 30<sup>th</sup> March, 2023

REGENT EDUCATION AND RESEARCH FOUNDATION

An Institution Affiliated To MAKAUT

Mechanical Engineering Department (3<sup>rd</sup> year)

Prepared By: Soumadeb Jana



Under The Guidance Of

Mr. Sandhi Singha & Mr. Subhankar Samanta



# INDEX

Acknowledgement.....	1
Spine Casting.....	2
Filling.....	3 – 5
1. Slury preparation.....	3
2. Slury Filling.....	4
3. Oxide Filling.....	5

# ACKNOWLEDGEMENT

Completing a task is never a one-man effort. It is often the result of valuable contribution of no. of individuals in a direct or indirect manner that helps in achieving an object. It is difficult to express in words our indebtedness to intellectuals, we received in completing the project report.

Limited for their valuable guidance in giving us a start & their timely advice interest in my project. Their direction supervision & constructive criticism were indeed a source of inspiration for us.

Date: 30.03.2023

TO WHOM IT MAY CONCERN

This is to certify that Mr. Soumadeb Jana, had undergone summer training at our Haldia works from 01.03.2023 to 30.03.2023.

His progress & performance during the training has been assessed to be Very Good.

For Exide Industries Limited

*Ranjan Kumar Singh*  
for Ranjan Kumar Singh  
Assistant Manager-Plant HR



## OXIDE FILLING: -

### PROCESS DESCRIPTION

Mixture of grey oxide and red oxide (at specified mix ratio) is filled inside the annular space between gauntlet and spine rods. The top end is closed by the carrots and the bottom end is closed with the help of plastics plugs known as bottom bar. The oxide is filled by a shaking process where the gauntlet-threaded spines are held in a jig in multiple quantities with the open end at the top for entry of oxide. The filling arrangements are of two designs namely

- 1) Sungwoon filling m/c
- 2) Exide filling me

In the Sungwoon & Exide filling process, the shaking is done with the help of piston and cylinder arrangement operated pneumatically.

Essential characteristics to be maintained in the process to obtain acceptable quality filled spines are given below:

- 1) The gauntlet should have the requisite stiffness to retain its shape and allow the oxide filling to take place. The weight limits of each type are as per range specified in Table D
- 2) The oxide mix should be dry enough to have a free-flowing condition and not in lump form.
- 3) The jigs should not have clearance allowing the multiple threaded gauntlets moving apart and allowing oxide to go in between the gauntlet outer face which will put pressure and collapse the gauntlet and prevent filling of the oxide. Similarly, the gauntlet shall not get squeezed between the jig profile-which can happen if the profile pitch and the gauntlet tube pitches do not match. So the jigs have to be carefully examined during introduction and periodically checked during use as the metal profile gets worn-out with progressive use. Jigs have to be marked with identification number and periodically checked and correction done.





**Exide Industries Limited**  
Durgachak, Haldia - 721602  
Purba Medinipur, West Bengal  
Ph (03224) 272140, 272265  
Email: [exideindustrieslimited@exide.co.in](mailto:exideindustrieslimited@exide.co.in)

Date: 30.03.2023

TO WHOM IT MAY CONCERN

This is to certify that Mr. Arunabha Maity, had undergone summer training at our Haldia works from 01.03.2023 to 30.03.2023.

His progress & performance during the training has been assessed to be Very Good.

For Exide Industries Limited

*Ranjan Kumar Singh*  
for **Ranjan Kumar Singh**  
**Assistant Manager-Plant HR**



# EXIDE INDUSTRY LIMITED

Durgachak, Haldia, East Midnapore, 721602



## INDUSTRIAL TRAINING REPORT

1<sup>ST</sup> to 30<sup>th</sup> March, 2023

REGENT EDUCATION AND RESEAECH FOUNDATION

An Institution Affiliated To MAKAUT

Mechanical Engineering Department (3<sup>rd</sup> year)

Prepared By: Arunabha Maity

Under The Guidance Of

Mr. Sandhi Singha & Mr. Subhankar Samanta

# **INDEX**

Acknowledgement .....	1
Spine Casting.....	2
Filling.....	3 – 5
1. Slury preparation... ..	3
2. Slury Filling.....	4
3. Oxide Filling.....	5

# ACKNOWLEDGEMENT

Completing a task is never a one-man effort. It is often the result of valuable contribution of no. of individuals in a direct or indirect manner that helps in achieving on object. It is difficult to express in word of our indebt to intellectuals, we received in completing in the project report.

Limited for their valuable guidance in giving us a start & their timely advice interest in my project. Their direction supervision & constructive criticism were indeed a source of inspiration for us.

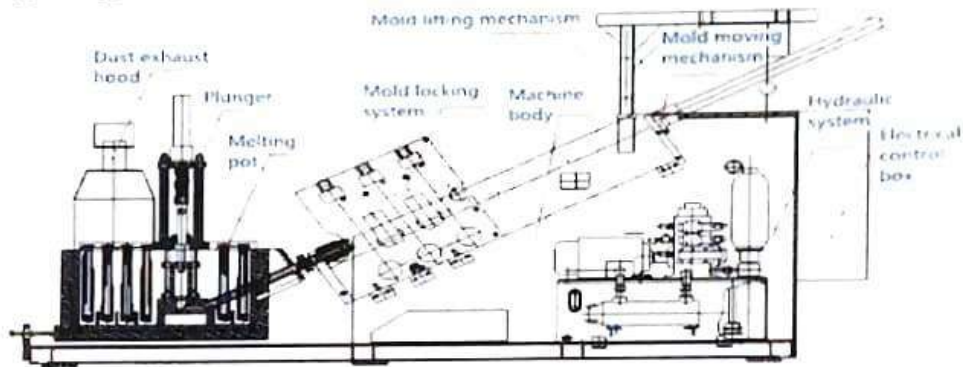


# SPINE CASTING

## Process description:

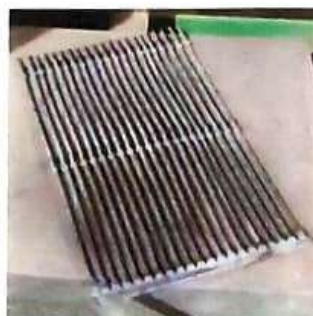
Molten lead is pumped into inclined mould with help of hydraulic pressure. Moulds are kept in closed condition with the help of pressure plates Molten lead travels uphill. Mould surface has smooth finish and further facilitated with help of liquid spray. The moulds have venting provision to drive out the air. Essential process characteristics to get acceptable quality castings and safe operation are

- 1) No leakage in hydraulic pumping circuit
- 2) Temperature of the mould to be set as such to get good quality product
- 3) No obstruction in the lead feed line in between the mould and the pump
- 4) No leakage at the nozzle & mould interface
- 5) No chanted material deposition in the heat transfer interface of the mould.
- 6) Cooling arrangement has to be in working condition.



## Parameter for Spine Casting Machine:

PARAMETERS	TEMP. REQUIREMENT ANTIMONY ALLOY	TEMP. REQUIREMENT CALCIUM ALLOY	REMARKS
Pot temperature °C	380±20	410±20	1. For Calcium Alloy IMF19T, BKF19T & XHD19T Mould. 2. Mould heater depends upon Size & spine dia. Generally Smaller size mould do not required heater arrangement.
Nozzle temperature °C	480±20	450±20	
Fix Mould temperature °C	100±10	100±10	
Loose Mould temperature °C	110±10	110±10	
Hydraulic pressure for filling	90±10 bar		Hydraulic system



After spine casting



**REGENT EDUCATION & RESEARCH**  
**FOUNDATION**

**NAME:- NITESH PRASAD**

**ROLL NO:- 26300721021**

**SUBJECT:- PROJECT II**

**TRADE:- MECHANICAL**

**YEAR:-3<sup>RD</sup>**

**SEMISTER:- 6<sup>TH</sup>**

**SUBJECT CODE:- PW-ME681**

**TOPIC NAME:-SUMMER TRAINING**



## **Company over view**

**Type: - Private**

**Authorized from: - TATA Motors**

**Name of shop: – TATA LEXICAN MOTORS  
(SHOWROOMS & WORKSHOP)**

**Industry : - Automobile (sales & service)**

## **ACKNOWLEDGEMENT**

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to (DEBTANU PATRA SIR) for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my special gratitude and thanks to TATA LEXICAN Motor's persons for giving me such attention and time.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

## **ABSTRACT**

It was a great opportunity for me to do One months internship in TATA LEXICAN MOTORS (A Unit of TATA MOTORS). The internship was concentrated on the car services. At the beginning of internship I had several queries in my mind regarding the different technologies used in TATA Motors and what skills are needed in organization. During my internship several queries are cleared by doing some activities. The objective of this internship is to gather information about the quick services and the major- minor problem that can be observed in day to day life. In the workshop, I have learnt the rules and safety instruction which helps me in understanding while working on cars. So, this internship was a great experience. I found out how much I am strong in automobile field. I gained new knowledge and skills and met many new people. I achieved many of my learning goals. I got insight into the work of an organization. The financing is an important factor and forces to be flexible in attitude and approach. I learned more about the problems which I have



LEXICAN MOTORS

Authorized Dealers of Tata Motors

Regd. Office: Trade Plaza, 847A, Topola Road (South), Kolkata - 700 046 Ph : 033-4040-7777

TATA MOTORS

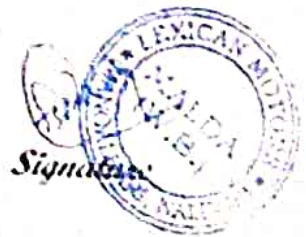
## Certificate

*This is to certify that NITESH PRASAD, C/O- RAM NARESH PRASAD  
Has completed successfully 18.01.2023 to 18.02.2023 apprenticeship from this  
organization.*

*We wish him/her all the success in life.*

*Date: 22/02/2023*

*Place: Malda*



:: SHOWROOMS & WORKSHOPS ::

Lexican Motors, Prop. : Reliance Industrial Consortium Ltd., N.H.-34, Naldubi, Mangalbari, Malda - 732142 (W.B.)  
Ph. : 03512-260325 / 260326, Mob. : 9830800575 / 9830800577

# INTERNSHIP CERTIFICATE

To whom it may concern,

This certification proves that RAJESH SK has completed the internship program at CAD Programming as a intern RAJESH SK started joining the program from **Wednesday, March 15, 2023** until **Saturday, April 15, 2023**.

During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

*Prasannakumar Shankar*

Sincerely,  
PRASANNAKUMAR SHANKAR  
B.TECH, M.TECH, MS, EMBA

CEO

Maxpertise Technology Labs

April 17, 2023

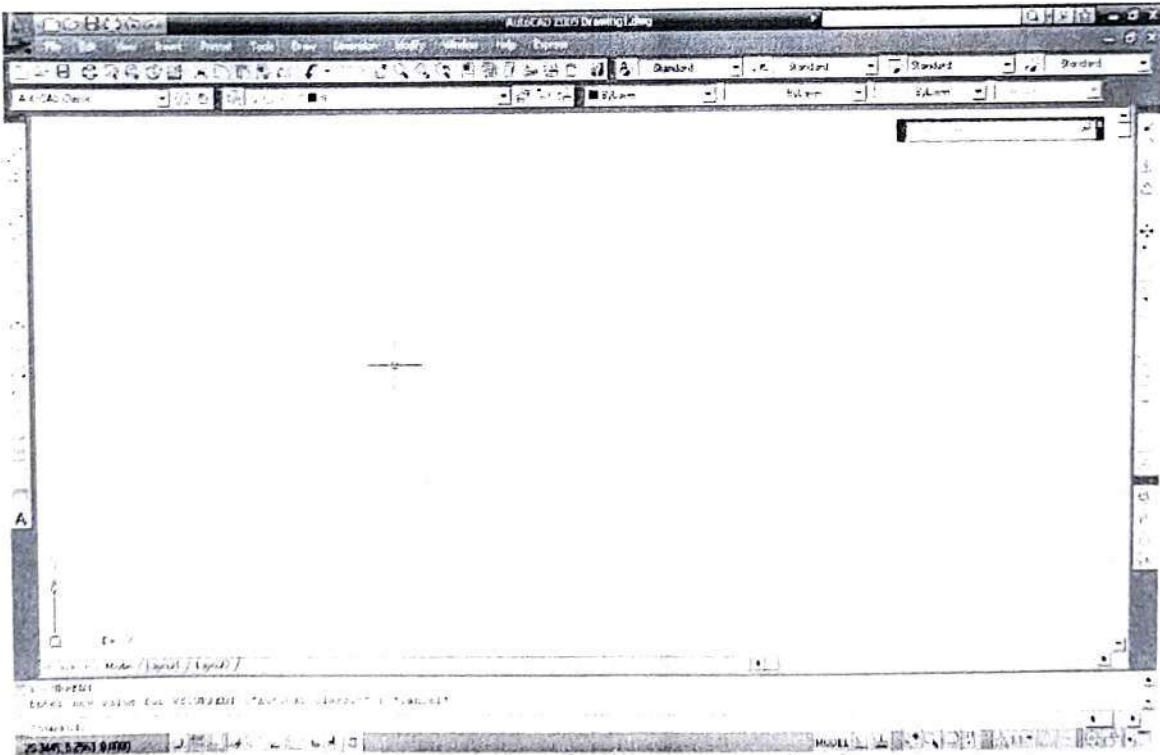


# AutoCad Basic Tutorial



# Launching AutoCad

1. Start
2. 3D and CAD
3. AutoCad



# Typing Commands

## Typing a Command

All AutoCAD commands can be typed in at the command line. Many commands also have one or two letter aliases that can also be typed as shortcuts to the commands.

1. Type the desired command at the command prompt.

Command : **LINE**

or

2. Type the command's alias. Command: **L**
3. Press **ENTER/Space** to end.
4. Type an option at the command prompt.

**TIP:** Many AutoCAD commands require you to press ENTER to complete the command. You know you are no longer in an AutoCAD command when you see a blank command line.

## Reissuing the Last Command

The last used AutoCAD command can be re-entered by one of the following three methods of ENTER. The ENTER key on the keyboard will always act as ENTER, the SPACEBAR and RIGHT MOUSE will act as enter most of the time (exceptions include placing TEXT).

1. Press the **ENTER** key on the keyboard

or

2. Press the **Space bar** on the keyboard.

or

3. Click the **right** mouse button.

# Pointing Device (Mouse)

AutoCAD uses either a mouse or digitizing tablet to select objects in a drawing.

## Left Mouse Button

Used to pick or select objects

1. Click the left mouse button to select an object area in the drawing.
2. Press **ESC** twice to deselect an object (or to cancel a command).

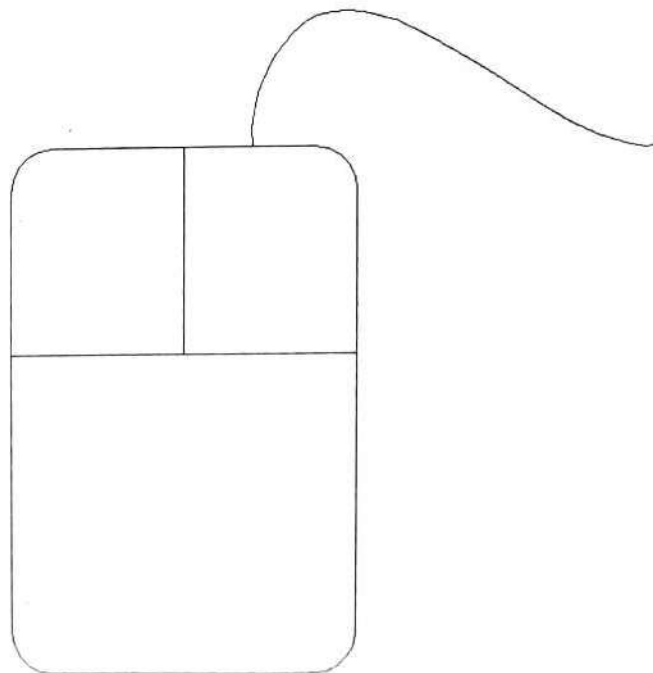
## Right Mouse Button

Used to enter a command, repeat last command, or access shortcut menus.

1. Click the right mouse button.

### TIPS:

- SHIFT + the right mouse button brings up the object snap menus.
- Various screen locations for the mouse brings up different menus. • menus.



# INTERNSHIP CERTIFICATE

To whom it may concern,

This certification proves that **Sayantan Adhya** has completed the internship program at CAD Programming as a intern Sayantan Adhya started joining the program from **Wednesday, March 15, 2023** until **Saturday, April 15, 2023**.

During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

*Prasanna Kumar Shankar*

Sincerely,  
**PRASANNAKUMAR SHANKAR**  
B.TECH, M.TECH, MS, EMBA

CEO

Maxpertise Technology Labs

April 17, 2023



## Table of Contents

TITLE.....	i
DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
ABSTRACT.....	v
<b>1 LITERATURE REVIEW.....</b>	<b>1</b>
1.1. CAD and CAM.....	1
1.1.1. THE ORIGINS OF CAD/CAM.....	1
1.2. The Beginners problem.....	3
1.3. Previous projects.....	3
1.4. AutoCAD Help.....	3
1.5. 2D VERSUS 3D.....	4
1.5.1. COMPARISON BETWEEN THE 2D-CAD METHOD AND THE 3D MODELING METHOD.....	5
1.6. Drawing standards.....	7
1.6.1. BS 308 versus BS 8888.....	8
1.6.2. About BS 8888.....	8
1.6.3. What does BS 8888 mean in practice?.....	9
1.7. Hardware Requirements for AutoCAD 2011.....	10
1.8. Evolution of AutoCAD.....	10
1.9. Vision 2030.....	11
1.10. AutoCAD versus other Autodesk products.....	12
1.11. The AutoCAD design flowchart.....	12
<b>2 INTRODUCTION.....</b>	<b>15</b>
2.1. Objectives.....	15
2.2. Introduction.....	15
2.3. Chain of distribution and users.....	15
<b>3. METHODS AND SCOPE OF STUDY.....</b>	<b>17</b>
3.1. SCOPE OF STUDY.....	17
3.1.1. Workspaces.....	17

3.1.2. Drawing Standards.....	17
3.1.3. The Ribbon.....	19
3.1.4. The Command Window.....	20
3.1.5. Commands.....	20
3.1.6. Visual styles.....	20
3.1.7. Layers.....	21
3.1.8. Rendering and Assignment of Materials.....	21
3.1.9. User Coordinate System (UCS).....	21
3.1.10. Assembly Drawing.....	22
3.2. DATA COLLECTION.....	22
3.2.1. Learning Path.....	22
3.3. ORGANIZATION OF THE LEARNERS MANUAL.....	23
4. RESULTS.....	25
4.1. AutoCAD 2011 Learners Manual.....	25
4.2. Sample Drawings.....	26
5. CONCLUSION.....	27
REFERENCES.....	27
APPENDIX 1.....	28
APPENDIX 2.....	94

## ABSTRACT

The aim of this project was to create a learners' manual for AutoCAD 2011 to act as a guide for beginners as well as a reliable reference for users with basic AutoCAD understanding. It was intended to teach the beginner from simple 2D drawings to complex 3D modeling.

In doing this we used simple and interactive language that make AutoCAD both simple to understand and interesting to learn.

Our decision to write this manual was inspired by a survey indicating that a good number of former graduates missed out on job opportunities because of their lack of good mastery of AutoCAD. We were convinced that AutoCAD is a necessary tool for every engineer, because engineers traditionally communicate their ideas through drawings. And as a matter of fact, it would be very difficult to fabricate anything functional without accurate working drawings.

In coming up with this manual we embarked on intensive research and liaison. We carried out in depth inquest into the relevant areas to include in the manual and their importance to the learner. This we did by interviewing users in industry most prominent among whom, were the engineers at the Numerical Machining Complex Ltd namely, Eng. Thihi, Eng. Mugambi and Eng. Musoko among others.

To gain expertise and competence as drafters in our individual capacity, we entered into apprenticeship with former graduates who have done extensive work in AutoCAD with a special to 2010/2011 AutoCAD manual. Further we made use of texts in AutoCAD written by instructors with immense experience in AutoCAD and drafting standards as indicated in our references section. The Internet was also extremely useful to us notably: [www.MyCADsite.com](http://www.MyCADsite.com) especially in the area of 3D modeling.

Through these varied methods of self learning and improvement, we were able to identify the areas most crucial to a beginner, and the challenges that frustrate them when venturing into AutoCAD.

The Learners' Manual, which is part of our results is the first appendix to this report. It was designed with a clear objective of making it easy to learn AutoCAD for a beginner.

The chapters and content of the manual have been ordered in such a way that the learner gets introduced to the basic concepts before the complex. For example chapters 1 to 2 deal with AutoCAD window and file handling. Chapters 3 and 4 deal with coordinate systems, navigation tools, draw and modify commands. Chapter 6 is a covers sample drawings to review the contents of chapter 1 to 5 and introduction to 3D work in chapter 7. Chapter 7 covers 3D drawings and assembly conclusively. Chapter 8 covers surface and mesh modeling while chapter 9 concludes with plotting and printing of drawings.

This report is a brief description of the methods we used to study AutoCAD and how we used that knowledge to make AutoCAD useful to undergraduate and recently graduated engineers. It starts from the literature review in chapter 1. In chapter 2 we cover the objectives and general introduction to AutoCAD as drafting software. Chapter 3 covers the scope and methods of study and compiling the contents of the learners' manual. **Our final result was the manual and the sample drawings in appendix 1 and 2 respectively.**

This manual was an instant success. Many final year students who had a chance to see the draft before publication requested us to start a class of AutoCAD after their final exams. Masters students in Energy Management congratulated us for meticulously covering the essentials of AutoCAD and were amazed that certain 3D models could be drawn with the software. Ultimately, we believe this manual will be very useful to any student who is interested in mastering AutoCAD.



# INTERNSHIP CERTIFICATE

April 16, 2023

To whom it may concern,

This certification proves that SUVENDU DAS has completed the Internship program at CAD Programming as a .SUVENDU DAS started joining the program from Sunday, March 12, 2023 until Sunday, April 16, 2023.

During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

Sincerely,

*Prasanna Kumar Shankar*  
PRASANNAKUMAR SHANKAR  
B.TECH, M.TECH, M.S, EMBA  
CEO

Maxpertise Technology Labs

April 16, 2023



## ACKNOWLEDGEMENT

I am highly grateful to **Mrs. Arpita Roy Choudhury, HOD (IPE Department)** for providing this opportunity to carry out one-month practical training at **INTERNSHALA**.

The constant guidance and encouragement received from **Mr. Kallash Borkar, Assistant Professor (IPE Department)** has been of great help in carrying out the project work and is acknowledged with reverential thanks.

I would like to express a deep sense of gratitude and thanks profusely to **Mr. Tushar Jha, Instructor**, without the wise counsel and able guidance, it would have been impossible to complete the report in this manner.

I would like to express gratitude to other faculty members of IPE department for their intellectual support throughout the course of this work.

Finally, I am indebted to all whosoever have contributed in this report

## Abstract

Software training is one of the requirements to be fulfilled in order to obtain the Bachelor's Degree in Technology. Each student needs to do software training in a recognized company of their respective domain. The students are compulsory to the training for duration 1 month which is intended for their exposure to the software industry. A well planned, properly executed and evaluated software training helps a lot in developing a professional attitude. It develops an awareness of software approach to problem solving, based on a broad understanding of processes. Besides software training build self confidence among students and let students know the technical knowledge and professionalism.

During software training at "Interenshafa", most of the theoretical knowledge gained during the course of studies was put to test. Various efforts and processes involved in designing of a component was studied and understood during the training. In our training I undertook course of AutoCAD.

The training gave me good experience from the view of implementing my theoretical knowledge in practical aspects. It gave me first-hand experience of working as an engineering professional. It helped me in improving my technical, interpersonal and communication skills, both oral and written. Overall, it is a great experience to have software training in such a reputed firm and I believe that it will help me in building a successful career.

## CONTENTS

- Introduction
- Benefits of AutoCAD
- AutoCAD Screen
- Methods to work in AutoCAD
- Drawing Units
- Dimension Style Manager
- Some Commands with Shortcut in AutoCAD
- Text Command
- Block Command
- Hatch Command
- Drawings made in AutoCAD
- Layout
- Drawing on Layout
- Isometric Drawing
- 3D Drawing
- 3D Drawing made in AutoCAD
- Conclusion



# REGENT EDUCATION & RESEARCH FOUNDATION

Affiliated to MAKAUT, West Bengal  
Barrackpore, India 700121

## Summer Training and Internship report on AUTOCAD

NAME	TiyasaDaw
REGISTRATION NO.	212630100720005
ROLL NO.	26300721027
BRANCH	Mechanical Engineering
DURATION	10/03/2023 to 10/04/2023



## ACKNOWLEDGEMENT

It is my pleasure to be indebted to various people who directly or indirectly or indirectly helped me to learned this course and who influenced my thinking behaviour and acts during study.

I am thankful to the instructor of this course for his support and cooperation provided to me during the summer internship training. I also extend my sincere appreciation to mentor (Debaprasad Pal) who provided their valuable suggestion and precious time for helping me out in completing my course.

I perceive as this opportunity as a big milestone in my career development I will strive to use gained skills and knowledge in the best viable way and I will continue to work on their improvement to attain desires carrier objective hope to continue cooperation with all of you in the future.

# CERTIFICATE

Dated : 10.04.2023



## Bright Technical Institution

Haria, Khejuri, Purba Medinipur, 721430  
An ISO Certified Training Institute ISO 9001 : 2015

### Certificate of Completion

THIS CERTIFICATE IS PRESENTED TO

*Tiyasa Daw*



This Certifies that the person named above  
has successfully completed the

**AUTOCAD(2D&3D) IN MECHANICAL ENGINEERING**

Course Co-ordinator  
BRIGHT TECHNICAL INSTITUTION



DEBAPRASAD PAL  
Director  
BRIGHT TECHNICAL INSTITUTION

# CONTENTS

- Introduction
- Version of AutoCAD
- AutoCAD Screen
- Way to provide command
- How it works
- Co-ordinate system
- Toolbars
- Some 2D command
- Some 3D commands
- Isometric view
- Project work
- Benefits of AutoCAD
- Conclusion
- Bibliography



# INTRODUCTION

- The Word AutoCAD is made up of two words "Auto ( logo of company)" and CAD " (computer aided design/drafting)".
- AutoCAD is 2D and 3D modelling software.
- It is developed by Autodesk company.
- AutoCAD is an U.S.A based company.
- It is widely used in industry for 2D drawing and 3D modelling.
- In another way we can say that AutoCAD is a designing course, which is performed by the help of computer.

## Version of AutoCAD

- ❖ AutoCAD software was firstly launched by Autodesk company in Dec. 1982.
- ❖ It comes in India in 1988.
- ❖ The first version of AutoCAD was R1 after that R2,R3,R4..... and so on.
- ❖ In 2000, Autodesk launched a version of AutoCAD 2000 after that 2001,2002... so on.
- ❖ This time, we have the latest version of AutoCAD in 2020.
- ❖ Latest version is easy to use and over come the difficulties of old version.

# AutoCAD Screen



## Way to provide command

- Type "cul" in the command line and press "Enter."
- Create a new command.
- Name your command.
- Edit the macro.
- Add an icon.
- Drag the command to a toolbar.





**REGENT EDUCATION & RESEARCH FOUNDATION**  
**Affiliated to MAKAUT, West Bengal**  
**Barrackpore, India 700121**

**Summer Training and Internship report on AUTOCAD**

<b>NAME</b>	Saikat Paul
<b>REGISTRATION NO.</b>	212630100720006
<b>ROLL NO.</b>	26300721028
<b>BRANCH</b>	Mechanical Engineering
<b>DURATION</b>	10/03/2023 to 10/04/2023



## ACKNOWLEDGEMENT

It is my pleasure to be indebted to various people who directly or indirectly or indirectly helped me to learned this course and who influenced my thinking behaviour and acts during study.

I am thankful to the instructor of this course for his support and cooperation provided to me during the summer internship training. I also extend my sincere appreciation to mentor (Debaprasad Pal) who provided their valuable suggestion and precious time for helping me out in completing my course.

I perceive as this opportunity as a big milestone in my career development I will strive to use gained skills and knowledge in the best viable way and I will continue to work on their improvement to attain desires carrier objective hope to continue cooperation with all of you in the future.

# CERTIFICATE

Date: 11.04.2023

 **Bright Technical Institution**  
Haria, Khejuri, Purba Medinipur, 721430  
An ISO Certified Training Institute ISO 9001 : 2015

**Certificate of Completion**  
**THIS CERTIFICATE IS PRESENTED TO**

**Saikat Paul**

This Certifies that the person named above  
has successfully completed the

**AUTOCAD(2D&3D) IN MECHANICAL ENGINEERING**



  
Course Co-ordinator  
BRIGHT TECHNICAL INSTITUTION

  
MEIE  
Mechanical Engineering Institute of Eastern



  
DEBAPRASAD PAUL  
Director  
BRIGHT TECHNICAL INSTITUTION

# CONTENTS

- Introduction
- Version of AutoCAD
- AutoCAD Screen
- Way to provide command
- How it works
- Co-ordinate system
- Toolbars
- Some 2D command
- Some 3D commands
- Isometric view
- Project work
- Benefits of AutoCAD
- Conclusion
- Bibliography

# INTRODUCTION

- The Word AutoCAD is made up of two words "Auto ( logo of company)" and CAD " (computer aided design/drafting)".
- AutoCAD is 2D and 3D modelling software.
- It is developed by Autodesk company.
- AutoCAD is an U.S.A based company.
- It is widely used in Industry for 2D drawing and 3D modelling.
- In another way we can say that AutoCAD is a designing course, which is performed by the help of computer.

## Version of AutoCAD

- ❖ AutoCAD software was firstly launched by Autodesk company in Dec. 1982.
- ❖ It comes in India in 1988.
- ❖ The first version of AutoCAD was R1 after that R2,R3,R4..... and so on.
- ❖ In 2000, Autodesk launched a version of AutoCAD 2000 after that 2001,2002... so on.
- ❖ This time, we have the latest version of AutoCAD in 2020.
- ❖ Latest version is easy to use and over come the difficulties of old version.



**REGENT EDUCATION & RESEARCH  
FOUNDATION**  
**Affiliated to MAKAUT, West Bengal**  
**Barrackpore. India 700121**

**Summer Training and Internship report on AUTOCAD**

<b>NAME</b>	Swarnava Acharyya
<b>REGISTRATION NO.</b>	212630100720007
<b>ROLL NO.</b>	26300721029
<b>BRANCH</b>	Mechanical Engineering
<b>DURATION</b>	10/03/2023 to 10/04/2023





## **ACKNOWLEDGEMENT**

It is my pleasure to be indebted to various people who directly or indirectly or indirectly helped me to learned this course and who influenced my thinking behaviour and acts during study.

I am thankful to the instructor of this course for his support and cooperation provided to me during the summer internship training. I also extend my sincere appreciation to mentor (Debaprasad Pal) who provided their valuable suggestion and precious time for helping me out in completing my course.

I perceive as this opportunity as a big milestone in my career development I will strive to use gained skills and knowledge in the best viable way and I will continue to work on their improvement to attain desires carrier objective hope to continue cooperation with all of you in the future.

# CERTIFICATE

Dated: 10.04.2023

 **Bright Technical Institution**  
Haria, Khejuri, Purba Medinipur, 721430  
An ISO Certified Training Institute ISO 9001 : 2015

**Certificate of Completion**  
**THIS CERTIFICATE IS PRESENTED TO**

**Swarnava Acharyya**

This Certifies that the person named above  
has successfully completed the

**AUTOCAD(2D&3D) IN MECHANICAL ENGINEERING**

  
Course Co-ordinator  
BRIGHT TECHNICAL INSTITUTION

  
DEBAPRASAD PAL  
Director  
BRIGHT TECHNICAL INSTITUTION

# CONTENTS

- Introduction
  - Version of AutoCAD
  - AutoCAD Screen
  - Way to provide command
  - How it works
  - Co-ordinate system
  - Toolbars
  - Some 2D command
  - Some 3D commands
  - Isometric view
  - Project work
  - Benefits of AutoCAD
  - Conclusion
- .Bibliography

# INTRODUCTION

- The Word AutoCAD is made up of two words "Auto ( logo of company)" and CAD " (computer aided design/drafting)".
- AutoCAD is 2D and 3D modelling software.
- It is developed by Autodesk company.
- AutoCAD is an U.S.A based company.
- It is widely used in industry for 2D drawing and 3D modelling.
- In another way we can say that AutoCAD is a designing course, which is performed by the help of computer.

## Version of AutoCAD

- ❖ AutoCAD software was firstly launched by Autodesk company in Dec. 1982.
- ❖ It comes in India in 1988.
- ❖ The first version of AutoCAD was R1 after that R2,R3,R4..... and so on.
- ❖ In 2000, Autodesk launched a version of AutoCAD 2000 after that 2001,2002... so on.
- ❖ This time, we have the latest version of AutoCAD in 2020.
- ❖ Latest version is easy to use and over come the difficulties of old version.

# SUMMER TRAINING REPORT ON DYE PENETRATION TEST

**AT M/S. BTL EPC LIMITED  
(2, JESSORE ROAD KOLKATA-700028)**

*Submitted report as  
PROJECT-II (PW-ME681)  
for  
the partial fulfillment of  
B. Tech in  
Mechanical Engineering*

Submitted by:  
**RAJDEEP NAG**  
(26300721030)



**Regent Education and Research Foundation**  
Affiliated to MAKAUT, West Bengal  
Barrackpore, India 700121

## 1.0 SCOPE:

- 1.1 This procedure covers colour contrast (visible) liquid penetrant examination method utilizing the solvent removable process. The processes like water washable and post emulsifiable shall not be applicable. When applicable, shall automatically call for procedure revision and demonstration to AI for qualification.
- 1.2 This procedure is applicable for below mentioned material and welds of all shapes and sizes.
  - a) Carbon steels, b) Low alloy steels, c) All types of stainless steels,
  - d) Nickel and its alloys, e) Titanium and its alloys.
- 1.3 The stage, extent and location of examination shall be specified in the Inspection Test Plan and Approved Drawing(Tag No: 58B-C-001)

## 1.4 Reference

Use Applicable Edition of the following Reference Documents:

- 1.4.1 ASME Section V Article 6,
- 1.4.2 ASME Section VIII Div.1 Appendix 8.
- 1.4.3 ASME Section VIII Div.2 Part 7.
- 1.4.4 ASME Sec. IX QW 195.2.2
- 1.4.5 SNT-TC-1A – (Code Accepted Edition)
- 1.4.6 BEL Written Practice BEL/PROC/WP/11.

## 2.0 PERSONNEL QUALIFICATION:

- 2.1 Liquid penetrant examination shall be carried out with a procedure approved by PT Level-III person.
- 2.2 Penetrant Examination shall be carried out by at least Competent Operator / Examiner certified as per BEL (BTL EPC LTD.) Written Practice.
- 2.3 Interpretation and evaluation shall be done by at least NDE level II qualified and certified as per BEL Written Practice.

## 3.0 PROCEDURE QUALIFICATION:

- 3.1 Essential and nonessential variables of this procedure are listed in **Table No 1**
- 3.2 A change in specified value or range of values in essential variable listed in Table 1 require requalification of the procedure by demonstration.
- 3.3 A change in specified value or range of values in non-essential variable listed in Table No.1 do not require requalification of the procedure.
- 3.4 All changes in specified value or range of values in essential and non-essential variable listed in Table No 1 shall require revision of this procedure or issue of addenda to the written procedure.

#### **4.0 DEMONSTRATION OF PROCEDURE:**

- 4.1 When required by referencing Code, BEL Quality Control In- Charge shall certify that NDE Written Procedures have been demonstrated using Flawed Samples to the satisfaction of the AI as per ASME Section V, Article-1 Para T-150 prior to use.

#### **5.0 PENETRANT MATERIALS:**

- 5.1 The following group of solvent removable penetrant materials are approved for use:

**GROUP 1:**

Orion – 115P - Penetrant

Orion – 115PR - Cleaner

Orion – 115D – Developer

- 5.2 **RESTRICTION:** Intermixing of penetrant materials from different groups is not permissible.

- 5.3 **Control of Contaminants:**

BEL shall obtain certification of contaminant content for all liquid penetrant materials used on nickel base alloys, austenitic or duplex stainless steels, and titanium. These certifications shall include the penetrant manufacturers' batch numbers and the test results for sulphur and total halogen content which shall not exceed values given below

- a) For Nickel Base Alloys only:

When examining nickel base alloys, all penetrant materials shall be analysed individually for sulphur content in accordance with SE-165, Annex 4. The sulphur content shall not exceed 0.1% by weight.

- b) For Austenitic Stainless Steel or Duplex Stainless Steel and Titanium only:

When examining austenitic or duplex stainless steel and titanium, all penetrant materials shall be analysed individually for halogens content in accordance with SE-165, Annex 2 (Chlorine) and Annex 3 (Fluorine). The total halogen content shall not exceed 0.1% by weight.

These records shall be maintained as required by the referencing Code Section

#### **6.0 SURFACE PREPARATION:**

- 6.1 The surface to be examined and all adjacent areas within at least 25 mm (1") shall be dry and free of all dirt, rust, grease, lint, scale, welding flux, weld spatter, paint, oil and other extraneous matter that could obscure surface openings or otherwise interfere with the examination.

Date : 10.05.2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Rajdeep Nag studying B.Tech in Mechanical Engineering Engineering (6th Semester) bearing R.No.: 26300721030 at Regent Education and Research Foundation has undergone NDT Training (DP/LP) at our BTL EPC LIMITED factory at Dumdum in district North 24 Parganas from 09th April – 10th May. The candidate has taken specific training in DP Test and overall knowledge about different type NDT.

We have observed that the candidate is having hard working nature and sincere during the training period and wish him for better prospects in studies as well as in career.

For BTL EPC LIMITED

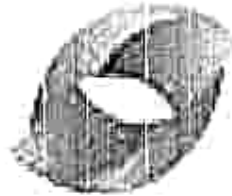


Sr Manager-Quality



# Arcl Organics Ltd

Rampur, P.S. Maheshtala, Kolkata – 700 141



## ARCL

Adhesives, Resins & Chemicals

### INDUSTRIAL TRAINING REPORT 2<sup>nd</sup> April to 30<sup>th</sup> April , 2023

REGENT EDUCATION AND RESEARCH FOUNDATION An Institution  
Affiliated To MAKAUT Mechanical Engineering Department (3rd year)



**PREPARED BY: SUBHADIP NAYAK**

Under The Guidance Of Mr. Ritwik Guha & Mr. Nirmal Monadal.

# INDEX

- About the Company .....1
- Road map of the Company.....2
- Acknowledgement.....3
- Department Of Company I have undergone for training.....4
- My Role & Responsibility.....5
- Skill and Knowledge that I have.....6-9
- Conclusion.....10

# About The Company

- **Year of establishment:** Arcl Organics Limited is an unlisted public company incorporated on 08 September, 1992. It is classified as a public limited company and is located in Parganas South, West Bengal. It's authorized share capital is INR 33.75 cr and the total paid-up capital is INR 8.00 cr.
- **Description:** The company is a manufacture of chemical products. It offers resins, additives, and hardener. ARCL Organics, etc.
- **Products & Services:** Animal Feed, Aqua feed, Epoxy Resins, Plastic Additives and formaldehyde.
- **Category:** Manufacturer
- **Mission:** Overall, the mission of the Arcl Organics Ltd is to provide essential chemical products, drive innovation, ensure safety and environmental responsibility, and contribute to sustainable development for the benefit of society.
- **Vision:** Revolves around creating a sustainable, innovative, and responsible chemical sector that provides solutions to societal challenges while safeguarding the environment and promoting the well-being of all stakeholders involved.

# CONCLUSION

- As an undergraduate, I would like to say that this training program is an excellent opportunity for me to get to the ground level and experience the many things. In this report, various works of the company are described. No. of plants, shops, and labs are there into which engineers do their research continuously to improve the quality of the product so that the company gets benefits and ultimately is influenced to them also.
- Spine casting and plate filling processes are described in the report. These processes will give you a brief overview of how the casting product is formed, what are the challenges come across during the processes and what action should be taken either to eliminate or reduce the problem.
- I Seen the various types of pump, valve, blower, ID , FD fan, agitator, heat exchanger, compressor etc manual handling and repairing work.
- This training provides me to observe and practice how engineering is applicable in the real industry. I had a taste of how the real atmosphere in the workplace, as well as a good relationship of mutual help, and cooperation during my industrial training.
- our course of industrial training in Arcl Organics Ltd at Kolkata . We came across aspects of engineering. It gives us a good opportunity to learn what I have read in books. The working employees of Arcl Organics Ltd , Kolkata are very friendly and helpful.

THANK YOU



**ARCL**  
Adhesives, Resins & Chemicals

April 3, 2023

**TO WHOM IT MAY CONCERN**

This is to certify that Mr. Subhadip Nayak, S/o. Shri Nimai Nayak, a 3<sup>rd</sup> year student of Mechanical Engineering Department, Regent Education and Research Foundation, Barrackpore took summer training in our organization from 2<sup>nd</sup> May, 2023 to 31<sup>st</sup> May, 2023.

While in training, Mr. Nayak was found very energetic, enthusiastic and took keen interest in learning. He has displayed excellent aptitude in studying machine equipment, operation manual of different section of our factory. He also took part in operation of various equipment in different section of our factory.

We wish him all success in life.

For ARCL Organics Ltd.

(R. Guha)

Head of the Department (Maintenance)

**ARCL Organics Ltd**



## REGENT EDUCATION & RESEARCH FOUNDATION

Report on Summer Training Carried out at

# INTERNSHALA

Academic Year 2023-2024



SUBMITTED BY,  
DIPMALYA DAS

**Class** :- B tech (ME)

**Univ. Roll No:** 26300721036

SUBMITTED TO,  
Mechanical Engineering  
Department, RERF

## ACKNOWLEDGEMENT

I am highly grateful to **DEPARTMENT OF MECHANICAL ENGINEERING, RERF** for providing this opportunity to carry out six week practical training at **INTERNSHALA**.

The constant guidance, encouragement and intellectual support received from our beloved teacher Mr. DEBTANU PATRA provide me great help in carrying out the project work and is acknowledged with reverential thanks.

I would like to express deep sense of gratefulness and thanks profusely to all faculty members without the wise counsel and able guidance, it would have been impossible to complete the report in this manner.



INTERNSHALA TRAININGS

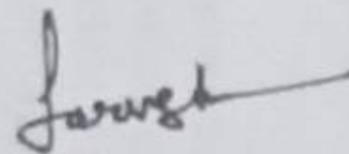
# Certificate of Training

**Dipmalya Das**

from REGENT EDUCATION & RESEARCH FOUNDATION GROUP OF INSTITUTIONS-263 has successfully completed a 6-week online training on **AutoCAD**. The training consisted of Interface, Drawing Aids & Basic Objects, Complex Objects & Object editing, Blocks & Annotations, Plotting & Introduction to 3D, and The Final Project modules.

Dipmalya scored 95% marks in the final assessment and is a top performer in the training.

We wish Dipmalya all the best for future endeavours.



Sarvesh Agarwal

FOUNDER & CEO, INTERNSHALA

Date of certification: 2023-04-26

Certificate no. : adyjgb98rj3

For certificate authentication, please visit [https://trainings.internshala.com/verify\\_certificate](https://trainings.internshala.com/verify_certificate)

## CONTENTS

- Introduction
- Benefits of AutoCAD
- AutoCAD Screen
- Methods to work in AutoCAD
- Drawing Units
- Dimension Style Manager
- Some Commands with Shortcut in AutoCAD
- Text Command
- Block Command
- Hatch Command
- Drawings made in AutoCAD
- Layout
- Drawing on Layout
- Isometric Drawing
- 3DDrawing
- 3DDrawingmadeinAutoCAD
- Conclusion

## INTRODUCTION

- AutoCAD is the software majorly used for drafting purpose.
- The word AutoCAD is made up of two words "Auto" (digital) and "CAD" (Computer Aided Designing).
- It is developed by Autodesk Company.
- CAD is a utility tool technology that is used for sharing of information with the help of computer.

## BENEFITS OF AUTOCAD

- File Handling
- Global File Sharing
- Easy to Modify
- More Accurate and Precise
- Improved Quality Over Hand Drafting
- More Reliable

## CONCLUSION

This report covered the preview of our learning path and study materials. The use of AutoCAD has many advantages. It can help to reduce the time it takes to produce the drawing needed in the work environment. AutoCAD software is the most amazing range of mechanical computer aided design tool. It is now considered to be the best according to industry standards that can be obtained for a wide array of designing, Mechanical Engineering Services and other industrial purposes.

The use of auto CAD may also be relied heavily on in order to create efficiencies with the industries. We were guided by the fact that there is more to learning AutoCAD than drawing simple figures and lines. It has very vast application in the field of manufacturing, architecture, electrical, and many more. With the help of AutoCAD, we can create design very quickly. It improves the quality of the drawing which we can't get by hand drafting. With the help of this software, drawing can be easily modified whenever wanted which reduces the human effort. We can easily transfer files from one place to another in no time which reduces the time.

This software is utilized to provide some useful and practical designing software that will allow users to visualize as well as create prototypes of a product in reality and quick time. AutoCAD software allows developers to give form to their out of the box ideas.

# SUMMER TRAINING REPORT

*Submitted as*  
**PROJECT-II (PW-ME681)**  
*for*  
*the partial fulfillment of*  
*B. Tech in*  
*Mechanical Engineering*

Submitted by:  
**RAJ KUMAR SHAW**  
Roll No: 26300721037  
Registration No: 212630100720002 OF 2021-22



**Regent Education and Research Foundation**

Affiliated to MAKAUT, West Bengal

Barrackpore, India 700121



## BSP MULTI WORTH INDIA (PVT) LTD.

136, COTTON STREET (4TH FLOOR) KOLKATA - 700 007, WEST BENGAL  
PHONE : 91-33-2278-7618 CIN : U74300WB1932PTC054453  
Website : [www.bspmultiworth.com](http://www.bspmultiworth.com) E-mail : [bspmultiworth@gmail.com](mailto:bspmultiworth@gmail.com)

Date-30.03.2023

TO WHOMSOEVER IT MAY CONCERN

### CERTIFICATE

This is to certify that **Mr. RAJ KUMAR SHAW**, B. Tech student in Mechanical Engineering from **Regent Education & Research Foundation**, Barrackpore, has successfully completed the Internship at **BSP Multiworth India PVT. LTD.**, Vivekananda Industrial Estate, Balitkuri, Howrah-711113, during the period from **01.03.2023** to **20.03.2023**.

We wish him all the best in future endeavors.



# TABLE OF CONTENTS

I.	ABSTRACT .....	1
II.	INTRODUCTION .....	2
III.	TRAINING DESCRIPTION .....	3
IV.	1. CASTING .....	3
	1.1. Definition .....	3
	1.2. Types of Casting .....	3
	1.2.1. Sand Casting .....	3
	1.2.2. Die casting .....	4
	1.2.3. Investment Casting .....	5
	1.2.4. Centrifugal casting .....	5
	1.2.5. Plaster-mold casting .....	6
	1.2.6. Permanent-mold casting .....	6
	1.2.7. Squeeze casting .....	6
	1.3. Advantages & Disadvantages .....	7
	2. STEPS OF CASTING .....	8
	2.1. Pattern Making .....	8
	2.1.1. Definition .....	8
	2.1.2. Types of Pattern .....	8
	2.1.2.1. Solid or Single piece Pattern .....	9
	2.1.2.2. Split pattern or two-piece Pattern .....	9
	2.1.2.3. Cope and Drag Pattern .....	9
	2.1.2.4. Match plate Pattern .....	9
	2.1.2.5. Gated Pattern .....	10
	2.1.2.6. Skeleton Pattern .....	10
	2.1.3. Pattern Allowances .....	10
	2.1.3.1. Draft Allowances .....	11
	2.1.3.2. Machining Allowances .....	11
	2.1.3.3. Distortion Allowances .....	11
	2.1.3.4. Rapping Allowances .....	11
	2.2. Core Making .....	12
	2.2.1. Types of Core .....	12
	2.2.1.1. Green Sand Core .....	12
	2.2.1.2. Dry Sand Core .....	12
	2.2.1.3. Core Print .....	12
	2.2.1.4. Core Box .....	12
	2.3. Molding .....	13
	2.3.1. Types of Mold .....	13
	2.3.2. Types of Temporary Mold .....	13
	2.3.2.1. Green Sand Mold .....	13
	2.3.2.2. Skin Dried Mold .....	13
	2.3.2.3. Dry Sand Mold .....	14
	2.3.2.4. No Bake Mold .....	14
	2.3.2.5. Molding Sand .....	14
	2.4. Melting Furnaces .....	14
	2.4.1. Cupola Furnace .....	14

2.4.2. Induction Furnace .....	15
2.4.3. Electric Arc Furnace .....	16
2.4.4. Crucible Furnace .....	16
2.5. Gating System .....	16
2.5.1. Runner & Sprue .....	17
2.5.2. Riser .....	18
2.6. Cleaning and Finishing .....	18
2.6.1. Cleaning .....	18
2.6.2. Finishing .....	18
2.7. Casting Defects .....	19
2.7.1. Surface Defects .....	20
2.7.2. Internal Defects .....	20
2.7.3. Visual Defects .....	21
IV. CONCLUSION .....	23
V. BIBLIOGRAPHY .....	24



## ABSTRACT

This report discusses the summer technical internship program for a period of 20 days (01.03.2023-20.03.2023) in BSP Multiworth India PVT. LTD. Howrah. It shows a brief background about the place of training. It also mentions few facts about the department that was responsible for the internship program. This report describes about the casting and the processes involved in producing castings of various metals manufactured by BSP Multiworth India PVT. LTD. The aim of my training was to extrude the inner self to the environment of working area in catastrophic periods and cope up with hurdles that are to be faced in future. It also included the learning of modern techniques used in manufacturing industries. It helped to bring the implementations of theoretical studies in practical and real world. The main point that was observed without which none can succeed was team work, every single individual had to coordinate with the other for upgrading the job that has to be done.

# Internship at CAD programming

*Submitted as 6th semester in  
PROJECT- II(PW-ME681)*

*for*

*the partial fulfillment of*

*B. Tech in*

*Mechanical Engineering*

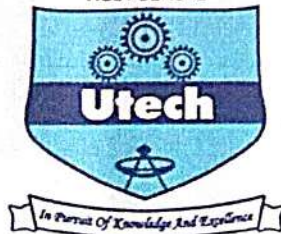
Submitted by:

**SAIKAT MAITI**

(Roll no-26300721038)



MAULANA ABUL KALAM AZAD  
UNIVERSITY OF TECHNOLOGY  
WEST BENGAL



**Regent Education and Research Foundation**

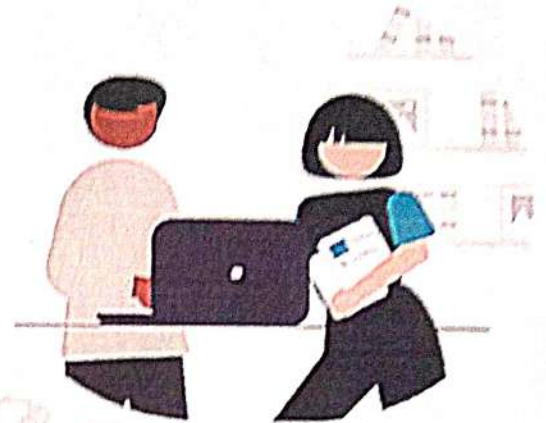
**Affiliated to MAKAUT, West Bengal**

**Barrackpore, India 700121**

# INTERNSHIP CERTIFICATE

To whom it may concern,

This certification proves that SAIKAT MAITI has completed the internship program at CAD Programming as a Intern. SAIKAT MAITI started joining the program from Wednesday, March 15, 2023 until Saturday, April 15, 2023.



During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

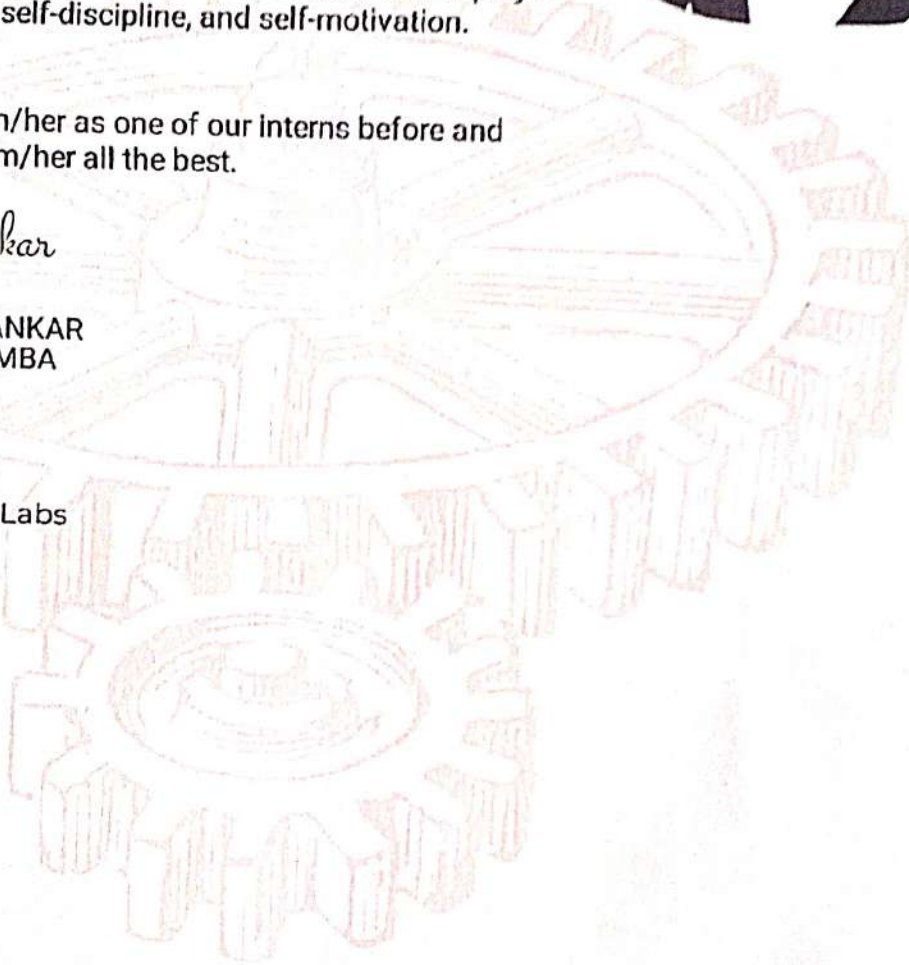
*Prasannakumar Shankar*

Sincerely,  
PRASANNAKUMAR SHANKAR  
B.TECH, M.TECH, MS, EMBA

CEO

Maxpertise Technology Labs

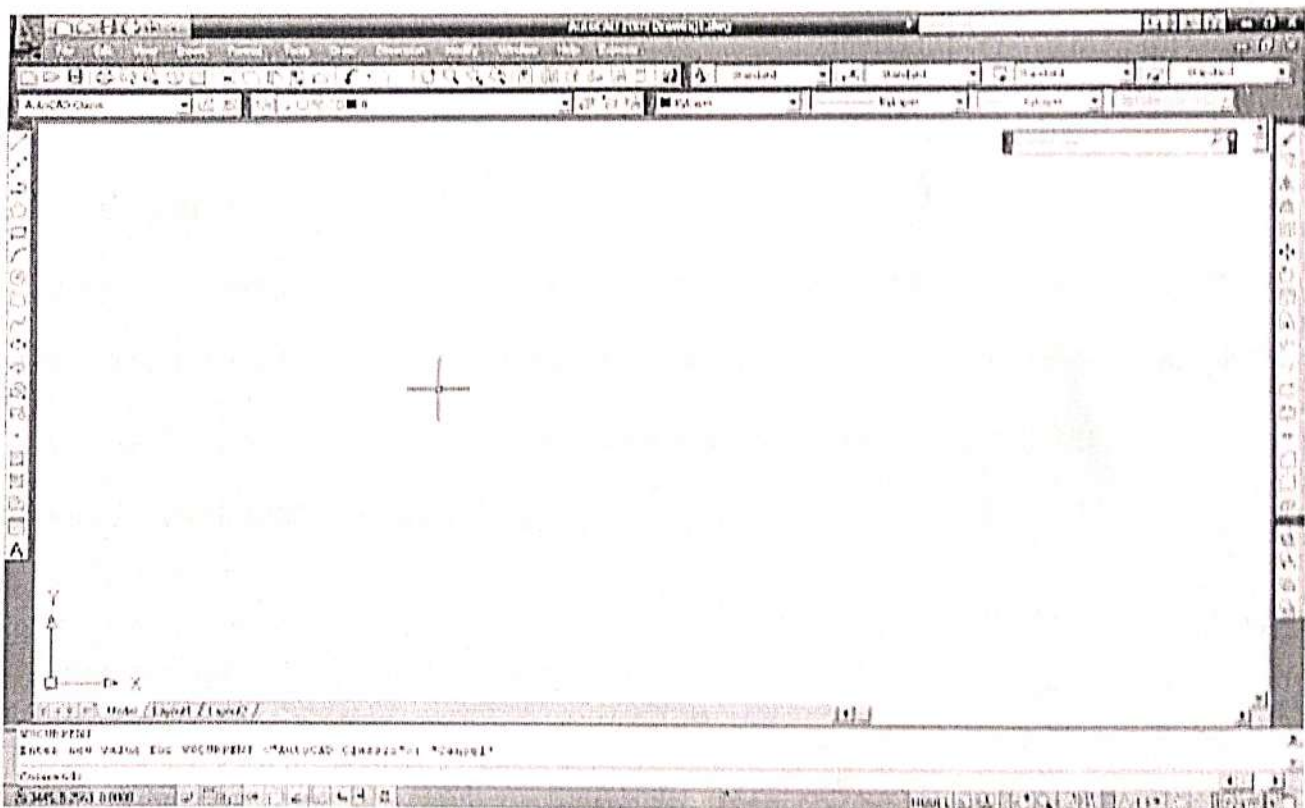
April 17, 2023



# AutoCad Basic Tutorial

# Launching AutoCad

1. Start
2. 3D and CAD
3. AutoCad



# Typing Commands

## Typing a Command

All AutoCAD commands can be typed in at the command line. Many commands also have one or two letter aliases that can also be typed as shortcuts to the commands.

1. Type the desired command at the command prompt.

Command : **LINE**

or

2. Type the command's alias. Command: **L**

3. Press **ENTER/Space** to end.

4. Type an option at the command prompt.

**TIP:** Many AutoCAD commands require you to press **ENTER** to complete the command. You know you are no longer in an AutoCAD command when you see a blank command line.

## Reissuing the Last Command

The last used AutoCAD command can be re-entered by one of the following three methods of **ENTER**. The **ENTER** key on the keyboard will always act as **ENTER**, the **SPACEBAR** and **RIGHT MOUSE** will act as enter most of the time (exceptions include placing **TEXT**).

1. Press the **ENTER** key on the keyboard

or

2. Press the **Space bar** on the keyboard.

or

3. Click the **right** mouse button.

# INTERNSHIP CERTIFICATE

April 10, 2023

To whom it may concern,

This certification proves that **SK SALAM HAQUE** has completed the internship program at CAD Programming as a **Design of Press Working Tools**. **SK SALAM HAQUE** started joining the program from **Friday, March 10, 2023** until **Monday, March 10, 2023**.



During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

*Prasannakumar Shankar*

Sincerely,  
Thanks & Regards,  
Prasannakumar Shankar B.E., M.Tech., EMBA, MS  
Master Trainer & CEO  
Maxpertise Technology Labs Pvt. Ltd.  
CEO

Maxpertise Technology Labs

April 10, 2023



## ACKNOWLEDGEMENT

I am highly grateful to **Mrs. Arpita Roy Choudhury, HOD (IPE Department)** for providing this opportunity to carry out one-month practical training at **INTERNSHALA**.

The constant guidance and encouragement received from **Mr. Kailash Borkar, Assistant Professor (IPE Department)** has been of great help in carrying out the project work and is acknowledged with reverential thanks.

I would like to express a deep sense of gratitude and thanks profusely to **Mr. Tushar Jha, Instructor**, without the wise counsel and able guidance, it would have been impossible to complete the report in this manner.

I would like to express gratitude to other faculty members of **IPE** department for their intellectual support throughout the course of this work.

Finally, I am indebted to all whosoever have contributed in this report



## Abstract

Software training is one of the requirements to be fulfilled in order to obtain the Bachelor's Degree in Technology. Each student needs to do software training in a recognized company of their respective domain. The students are compulsory to the training for duration 1 month which is intended for their exposure to the software industry. A well planned, properly executed and evaluated software training helps a lot in developing a professional attitude. It develops an awareness of software approach to problem solving, based on a broad understanding of processes. Besides software training build self confidence among students and let students know the technical knowledge and professionalism.

During software training at "Interenshala", most of the theoretical knowledge gained during the course of studies was put to test. Various efforts and processes involved in designing of a component was studied and understood during the training. In our training I undertook course of AutoCAD.

The training gave me good experience from the view of implementing my theoretical knowledge in practical aspects. It gave me first-hand experience of working as an engineering professional. It helped me in improving my technical, interpersonal and communication skills, both oral and written. Overall, it is a great experience to have software training in such a reputed firm and I believe that it will help me in building a successful career.

## CONTENTS

- Introduction
- Benefits of AutoCAD
- AutoCAD Screen
- Methods to work in AutoCAD
- Drawing Units
- Dimension Style Manager
- Some Commands with Shortcut in AutoCAD
- Text Command
- Block Command
- Hatch Command
- Drawings made in AutoCAD
- Layout
- Drawing on Layout
- Isometric Drawing
- 3D Drawing
- 3D Drawing made in AutoCAD
- Conclusion

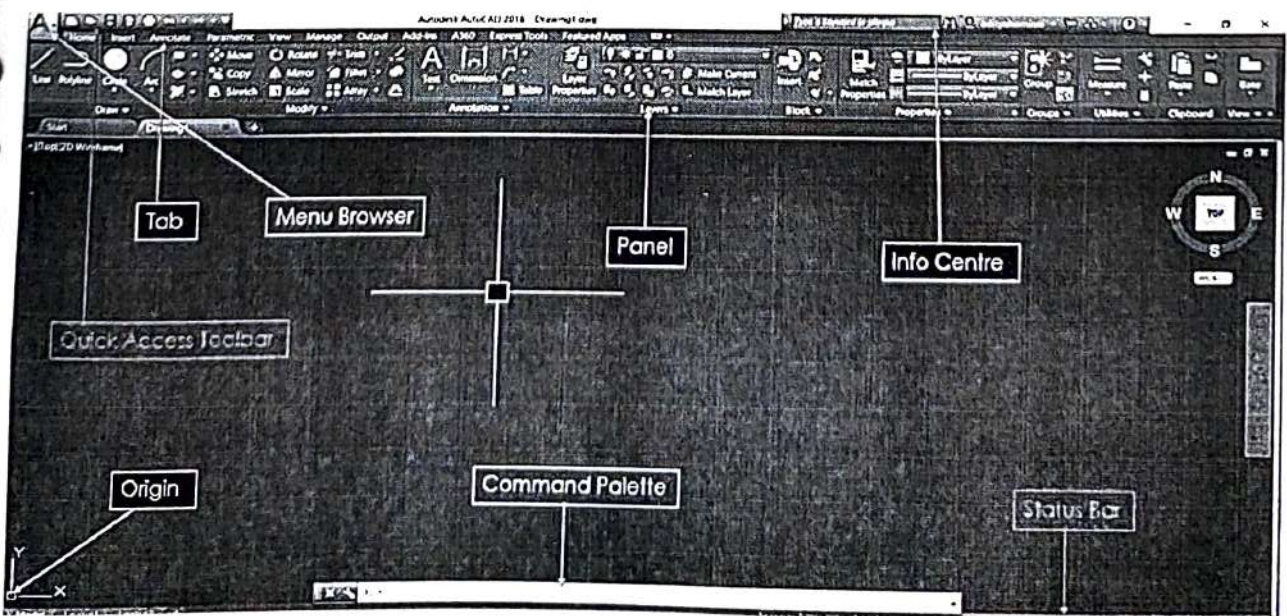
## INTRODUCTION

- ❑ AutoCAD is the software majorly used for drafting purpose.
- ❑ The word AutoCAD is made up of two words "Auto" (digital) and "CAD" (Computer Aided Designing).
- ❑ It is developed by Autodesk Company.
- ❑ CAD is a utility tool or technology that is used for sharing of information with the help of computer.

## BENEFITS OF AUTOCAD

- ❑ File Handling
- ❑ Global File Sharing
- ❑ Easy to Modify
- ❑ More Accurate and Precised
- ❑ Improved Quality Over Hand Drafting
- ❑ More Reliable

## AUTOCAD SCREEN



# SUMMER TRAINING REPORT

ON

“AutoCAD”

AT

INTERNSHALA 

*Submitted for Project— II (PW-AE681) in partial fulfillment for awarding the degree of*

BACHELOR OF TECHNOLOGY  
IN  
MECHANICAL ENGINEERING

*Submitted to:*

DEBTANU PATRA  
(Asst. Professor)

*Submitted by:*

ARGHYA MODAK  
(26300721045)



**DEPARTMENT OF MECHANICAL ENGINEERING**  
**REGENT EDUCATION AND RESEARCH FOUNDATION**

Affiliated to MAKUT, West Bengal, Barrackpore, India 700121

Session: 2022- 2023

## **DECLARATION**

I, ARGHYA MODAK student of B. TECH, 6<sup>th</sup> semester at REGENT EDUCATION & RESEARCH FOUNDATION affiliated to MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY hereby declare that the Training Report entitled "AutoCAD" which is submitted by me is an authentic record of my own work carried out during the training. I myself originally prepared this report based on 45 days or 6 – weeks of Online training.

ARGHYA MODAK

# CERTIFICATION

INTERNATIONAL TRAINING

## Certificate of Training

**ARGHYA MODAK**

Ms. Arghya Modak, Education and Research Institute has successfully completed a 6 week online training on **AutoCAD**. The training consisted of Introduction, Drawing Aids & Basic Objects, Complex Objects & Object editing, Blocks & Annotations, Plotting & Introduction to 3D, and The Final Project modules. In the final assessment, Arghya scored 88% marks. We wish ARGHYA all the best for future endeavours.

Director-Approval  
Internationa

Date of Certificate: 20/04/2021

Certificate No: 19/04/2021

For any queries please contact: [info@internationa.com](mailto:info@internationa.com)

## ABSTRACT

Software training is one of the requirements to be fulfilled in order to obtain the Bachelor's Degree in Technology. Each student needs to do software training in a recognized company of their respective domain. The students are compulsory to the training for duration 1 month which is intended for their exposure to the software industry. A well planned, properly executed and evaluated software training helps a lot in developing a professional attitude. It develops an awareness of software approach to problem solving, based on a broad understanding of processes. Besides software training build self confidence among students and let students know the technical knowledge and professionalism.

During software training at "Internshala", most of the theoretical knowledge gained during the course of studies was put to test. Various efforts and processes involved in designing of a component was studied and understood during the training. In our training I undertook course of AutoCAD.

The training gave me good experience from the view of implementing my theoretical knowledge in practical aspects. It gave me first-hand experience of working as an engineering professional. It helped me in improving my technical, interpersonal and communication skills, both oral and written. Overall, it is a great experience to have software training in such a reputed firm and I believe that it will help me in building a successful career.

## CONTENTS

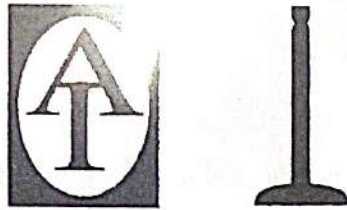
SL. NO.	PARTICULARS	PAGE NO.
01.	<b>CHAPTER - 1 INTERNSHALA</b>	<b>1 - 2</b>
02.	1. INTRODUCTION	1
03.	2. VISION	1
04.	3. HISTORY	1
05.	4. PARTNERSHIPS	1
06.	5. AWARDS & RECOGNITION	2
07.	6. PRODUCTS & SERVICES	2
08.	<b>CHAPTER - 2 AUTODESK</b>	<b>3 - 5</b>
09.	1. INTRODUCTION	3
10.	2. HISTORY	4
11.	3. PRODUCTS	5
12.	<b>CHAPTER - 3 AUTOCAD</b>	<b>6- 44</b>
13.	1. INTRODUCTION	6
14.	2. AUTOCAD WINDOW	7-8
15.	3. SELECTING THE WORKSPACE	9
16.	4. FILING AND DATA INPUT	9- 11
17.	5. COORDINATES ENTRY	11- 12
18.	6. NAVIGATION TOOLS	12- 14
19.	7. DRAWING UNITS & LIMITS	15
20.	8. COMMANDS	16-23
21.	9. DIMENSION TOOLBARS	24-29
22.	10. TABLE	30-31
23.	11. BLOCK	31-33
24.	12. ISOMETRIC DRAWING	33-35
25.	13. 3D MODELING	36-41
26.	14. PRINTING & PLOTTING	42-43
27.	<b>CHAPTER - 4</b>	<b>44-45</b>
28.	CONCLUSION	44
29.	BIBLIOGRAPHY	45



## BIBLIOGRAPHY

- ♣ <https://www.google.com/>
- ♣ <https://en.wikipedia.org/wiki/Internshala>
- ♣ <https://internshala.com/about-us>
- ♣ <https://www.autodesk.com/company>
- ♣ <https://en.wikipedia.org/wiki/Autodesk>
- ♣ <https://www.autodesk.in/products/autocad/>
- ♣ <https://en.wikipedia.org/wiki/AutoCAD>

**SUMMER TRAINING REPORT**  
on  
**MANUFACTURING OF IMPELLER AND SHEAR BLADE**  
at  
**AUTOMOTIVES INDIA**



**Duration**  
3<sup>rd</sup> April, 2023 to 29<sup>th</sup> April, 2023

**SUBMITTED TO:**

**Mr. Surajit Dev, Proprietor**  
Automotives India  
Kolkata-700019

**SUMMITTED BY:**

**Shreyoshi Sikdar**  
University Roll No.: 26300721048  
B. Tech in Mechanical Engineering  
3<sup>rd</sup> Year, 6<sup>th</sup> Sem  
Regent Education and Research Foundation  
Barrackpore, India- 700121



## Summer Training Certificate

### **AUTOMOTIVES INDIA**

*Mfrs of Critical Mechanical Spares for Steel Plants, Power Plants & Refineries*

2/1, Dover Terrace, Kolkata- 700 019 Phone: 033 24750711 / 24750400



Ref No: AI/Summer Trg/06/2023

Date: 29.04.2023

#### **CERTIFICATE OF SUMMER TRAINING**

This is to certify that **Ms. Shreyoshi Sikdar** pursuing **B.Tech.** from **Regent Education & Research Foundation Group of Institutions** has under-goes Summer Training for a period of **4 Weeks** from April 3, 2023 to April 29, 2023 in **Mechanical Engineering** Discipline at **Automotives India, Kolkata.**

During this period she has prepared a project report.

She has taken keen interest in learning practical aspects of the project. Her performance & conduct was excellent during this project.

We wish her best of luck for her career & future endeavours.

For AUTOMOTIVES INDIA

Proprietor

## ACKNOWLEDGEMENT

I am highly thankful to AUTOMOTIVES INDIA engineers and technical staff for providing me vital and valuable information about the different facets of an industrial system.

I express my gratitude to Mr. Surajit Dev for giving me a chance to feel industrial environment and its working in Automotives India and I am thankful to all engineers and staff members for giving their precious time and help me in understanding various theoretical and practical aspect of my project under whose supervision I accomplish my project.

Date: 29.04.2023

*Shreyoshi Sikdar*

**Shreyoshi Sikdar**

University Roll No.: 26300721048

B. Tech in Mechanical Engineering

3<sup>rd</sup> Year, 6<sup>th</sup> Sem

Regent Education and Research Foundation

Barrackpore, India- 700121

## INDEX

SL. NO.	TOPIC	PAGE NO.
1	<b>Introduction</b>	5
2	<b>About Automotives India</b> <ul style="list-style-type: none"><li>• Company Profile</li><li>• Mission</li><li>• Vision</li></ul>	6-8
3	<b>Customer List</b>	9
4	<b>Products List</b>	10
5	<b>Manufacturing Of Impeller</b> <ul style="list-style-type: none"><li>• Introduction</li><li>• Types of Impeller</li><li>• Manufacturing Processes</li><li>• Study of Manufacturing Drawing<ul style="list-style-type: none"><li>○ Cost Sheet of Impeller</li><li>○ Quality Assurance Plan</li><li>○ Operations &amp; Machine Used for manufacturing of Impeller</li><li>○ Inspection</li></ul></li></ul>	11-18
6	<b>Manufacturing of Shear Blade</b> <ul style="list-style-type: none"><li>• Introduction</li><li>• Advantages</li><li>• Manufacturing Processes<ul style="list-style-type: none"><li>○ Study of Manufacturing Drawing</li><li>○ Cost Sheet of Shear Blade</li><li>○ Quality Assurance Plan</li><li>○ Planning Sheet</li><li>○ Inspection</li></ul></li></ul>	19-26
7	<b>Summary</b>	27

## INTRODUCTION

This is a report on summer training I received at AUTOMOTIVES INDIA during 3<sup>th</sup> April to 29<sup>th</sup> April, 2023. This enabled me to learn the process of Impeller & Shear Blade manufacturing.

At very outset of the prologue it becomes imperative to insist summer training is an integral part of engineering curriculum. Training allows us to gain an insight into the practical aspect of various topics, with which we come across while pursuing our B.Tech i.e. summer training gives us practical implementation of various topics we already have learned and will learn in near future. Summer training always emphasizes on logic and common sense instead of theoretical aspect of subject.

On my part I pursued four weeks training at Automotives India, Kolkata. The training involved a study of various manufacturing items of the organization as per the time logically scheduled and well planned given to us.

# INTERNSHIP CERTIFICATE

To whom it may concern,

This certification proves that **ANKUR DAS** has completed the internship program at CAD Programming as a intern. ANKUR DAS started joining the program from **Wednesday, March 15, 2023** until **Saturday, April 15, 2023**.



During his/her stay in the company as an Intern, he/she displays enthusiasm, leadership, self-discipline, and self-motivation.

We are lucky to have him/her as one of our interns before and we would like to wish him/her all the best.

*Prasanna Kumar Shankar*

Sincerely,  
PRASANNAKUMAR SHANKAR  
B.TECH, M.TECH, MS, EMBA

CEO

Maxpertise Technology Labs

April 17, 2023





**A** AUTOCAD®

---

LEARN ABOUT AUTOCAD

---

An Introduction to AutoCAD for Beginners



**A** AUTODESK.



## Table of Contents

Introduction to AutoCAD .....	3
Upgrading from an Older Version .....	6
AutoCAD vs. AutoCAD LT .....	7
New Features Overview .....	8
Documentation .....	11
Design .....	13
Connectivity .....	14
Customization .....	15
Mac Highlights .....	16
User Interface Tour .....	17
Guide to AutoCAD Basics .....	20
Basics .....	22
Viewing .....	29
Geometry .....	31
Precision .....	38
Layers .....	43
Properties .....	49
Modifying .....	55
Blocks .....	67
Layouts .....	71
Notes and Labels .....	77
Dimensions .....	81
Printing .....	86
Additional Resources .....	91
Shortcut Keys .....	91
Enhanced Training & Certification Options .....	92

*Key enhancements were made in AutoCAD around documentation, design, connectivity and customization to help create a better user experience for Autodesk customers.*

# Introduction to AutoCAD



## Introduction to AutoCAD

Welcome to AutoCAD's tutorial. With this suite of tools, you will be able to produce high quality designs in less time, via the significant improvements in precision and flexibility while working in both 2D sketches and 3D modeling.

### New Features

Developed based on the feedback from actual users, AutoCAD includes the features that designers and engineers need in order to do their best work. Richer design context and more intelligent tools clear the way to faster, more precise design and documentation. The new smart dimensioning feature automatically creates appropriate measurements based on the type of objects you select. For example, angular dimensions on circles and arcs, dimensions between parallel lines and dimensions based on Object Snaps. Improvements to the drawing canvas produce a stunning visual experience that makes navigating the details of your drawing easier than ever.

*AutoCAD is helping users produce quality designs in less time with significant improvements.*

Documentation has been upgraded, as well. The new Enhanced PDFs are smaller, faster and smarter, with more searchable content. If you are bringing a PDF into AutoCAD, there are significant enhancements to the underlay feature which makes for quicker, more fluid panning

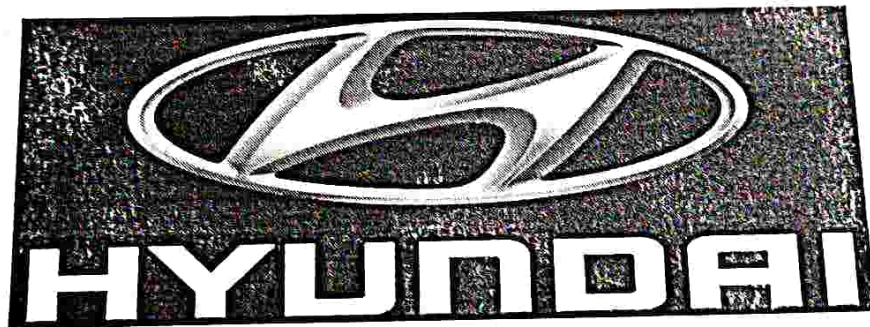


**REGENT EDUCATION & RESEARCH  
FOUNDATION**

**Report on Summer Training**

**Carried out at**

**Mukesh Training Academy  
(Mukesh Hyundai)**



**From 10<sup>th</sup> March, 2023 to 23<sup>rd</sup> March,**

**2023 Academic Year 2023-2024**

**Submitted by:**

**Name: TANMOY PALIT  
Class: B.Tech (ME)  
Univ. Roll No: 26300721052**

**Submitted to:**

**Mechanical Engineering Department,  
RERF**

## Acknowledgment

---

First I would like to thank Ms. Tanusree Chatterjee (H.O.D), Mukeh Training Academy, Kestopur, Kolkata for giving me the opportunity to do an Training within the organization. For me it was a unique experience to be in this work shop. It also helped me to get back my interest in mechanical engineering and to have new plans for my future career.

I would like to thank all the people also that works in the organization. With their patience and openess they created an enjoyable working environment. Furthermore I want to thank all the engineers and students, with whom I did the Training. We experienced great things together and they taught us many more things regarding automobile.

At last I would like to thank Mr. Surojit Jana (Teacher), Mr. Debi (Technician) and Mr.Khan (floor in charge) who told me all about the organization and Quick services and also about the major-minor problem observed in the car.

## ABSTRACT

---

As I am very fond of automobile engineering. It was a great opportunity for me to do two weeks Training Mukesh Hyundai, Kestopur, Kolkata. The training was concentrated on the car services. At the beginning of the training I had several queries in my mind regarding the different technologies used in Hyundai and what skills are needed in organization. During my training several queries are cleared by doing some activities. The objective of this training is to gather information about the quick services and the major-minor problem that can be observed in day to day life. In the workshop, I have learnt the rules and safety instruction which helps me in understanding while working on cars. So, this training was a great experience. I found out how much I am strong in automobile field. I gained new knowledge and skills and met many new people. I achieved many of my learning goals. I got insight into the work of an organization. The financing is an important factor and forces to be flexible in attitude and approach. I learned more about the problems which I have face while working on the cars. Working together with the different background peoples and by education these threats have to be approached to succeed in my training the sharing of knowledge, ideas and opinions is of importance. There is still a lot of discover and other methods can be improved. At last this training has given me new insights and motivation to pursue a career in mechanical engineering.

## CONTENTS

---

	Pages
Training certificate .....	I
Certificate .....	II
Acknowledgement .....	III
Abstract .....	IV
Content .....	V-VI
List of figure .....	VII-VIII
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1-3</b>
1.1 Company overview .....	1
1.2 Some of their other unique features are .....	2
1.3 Company face .....	3
<b>CHAPTER 2: WORKSHOP &amp; SHOWROOM.....</b>	<b>4-6</b>
2.1 Workshop .....	4
2.2.1 Features of workshop .....	5
2.2 Showroom .....	6
<b>CHAPTER 3: WORKING IN WORKSHOP.....</b>	<b>8-11</b>
3.1 Service shop.....	8

3.1.1 Free service .....	10
3.1.2 Paid service .....	10
3.1.3 Running repair service .....	10
3.1.4 Quick service .....	10
3.2 Washing .....	10
<b>CHAPTER 4: WORKING IN DURING SERVICE IN WORKSHOP.....</b>	<b>12-19</b>
4.1 Replacement of the oil filter cartridge .....	12
4.2 Air filter... ..	12
4.3 A/C filter... ..	13
4.4 Engine oil .....	13
4.5 Clutch plate .....	14
4.6 Brake .....	15
4.6.1 Brake pad .....	16
4.7 Wheel alignment and balancing .....	18
4.8 Final inspection .....	19
<b>CONCLUSION .....</b>	<b>20</b>
<b>REFERENCES .....</b>	<b>21</b>