

VISIT REPORT OF IGTR

PLACE: INDO GERMAN TOOL ROOM (IGTR), VATVA GIDC, AHMEDABAD

DATE & TIME : 28th & 29th March 2023

BRANCH : MECHANICAL & Automobile

SEM.: (4A & 4AB) + (4B & 4C)



Mechanical Department has organized one day 4th semester students Industrial Visit on 28th and 29th March, 2023 at Indo-German Tool Room (IGTR) under ministry of MSME department, Vatva, Ahmedabad.

IGTR is equipped with the latest European machines and a motivated and trained professional team. During a visit Students have visualized working condition of various CNC machine tools, CMM machine, ordinary machine, KUKA robot for welding, Plastic injection moulding section, measuring instruments, plastic and metal Rapid prototyping tool (3D printer). This whole industrial visit coordinated by Prof. A. G. Momin, Prof. D. K. Patel, Prof. S. B. Shah and Mr. M.I. Solanki.

INTRODUCTION OF IGTR

We are visit in the company so introduction according us, The company manufacturing various tools and dies from metal and plastic material.

Main aim of the company to manufactures various components with standardisation,They manufactures tools and moulds use them for producing parts, system, components, final product etc.

It is the collaborative project among Govt. of India, Govt. of Germany and Govt. of Maharashtra.

OBJECTIVE OF IGTR

To design standard and quality tool, dies, press, moulds, various gauges, Jig and fixtures according to customer requirements which conforming international standards.

VISIT IN MECHATRONICS LAB

In the lab there is many control system for signal, various EC – Circuits based on pneumatic control also PLC is there it is control machine signals with human logic.

VISIT IN SAMSUNG LAB

In this lab the company provide training for repairing and maintenance of Samsung TV, MOBILE, WASHING MACHINE, MICROWAVE, REFRIGRATOR, AC etc. Various things we learn from there.

VISIT IN ROBOTICS LAB

Various robots are there fully automatic and work with higher accuracy and quickness.

- Pick and Place robot ●
- Welding robot etc.



PICK AND PLACE ROBOT

VISIT IN MACHINING LAB

Various machine is there like LATHE, VERTICAL MILLING, SURFACE GRINDER etc, also we look the demonstration of how to read actual industrial drawing and how to operate and work on lathe machine



MACHINE SHOP

CNC LAB

There are two machines

CNC MILLING (Joyti DX 200 modal): It have turret and tail stock, ATC consist 9 station.

VMC (Haas company): It have haas controller, ATC with 10 station

(X 762mm)(Y 300mm) (Z 300mm)

Working with ISO STANDARD **G** and **M** codes



CNC MILLING

INJECTION MOULDING AREA

Polystyrene, Acrylic, Polypropylene material are used in injection moulding at IGTR. **L&T machine ASWA 650/1000** Reciprocating screw type injection moulding machine use, all plastic product is made with different moulds it require different coding.

On the all machine preventive actions and specification are attach.



VMC MACHINE



INJECTION MOULDING MACHINE

PARTS MADE BY INJECTION MOULDING



PARTS MADE BY INJECTION MOULDING

We are taking launch in canteen of IGTR around 1:00 PM, It was a nice experience for us because we are having more time to communicate with company employs and workers and getting more deep knowledge.

LASER BEAM MACHINING

We visit at that place where LBM is performed they use 0.3 and 0.5 filling road, Road material is used Al, Cu, brass etc, Heating is not generated and you can also use coolant for better quality.

Parameters to be set Current, Voltage, Frequency etc.

QUALITY CONTROL

In quality control we look the various instruments and machine which listed below

Profile projector

Dial vernier calliper

Bore gauge

Micrometer

Go and No Go gauges

Sine bar

Bevel protector etc

CMM MACHINE: Which is measured to coordinates of components, It is very helpful and trendy machine most of all industries are use that machine.

PROFILE PROJECTOR: It is used to measure the gear tooth profile.



CMM MACHINE



PROFILE PROJECTOR

WIRE CUTTING EDM

There are many wire cutting electro discharge machines used for cutting components. Mostly used copper wire,

ROBO FILL 290 CHARMILLES TECHNOLOGY WIRE CUT EDM machine.



WIRE-CUT EDM

METAL R.P. & FDM

It is direct convert drawing in to component by dividing component in to triagonal, ABS material is used.

FDM (Fusion Deposition Modelling): It is produce the component which is called additive manufacturing, layer by layer material is paste and according to design the component will ready.

Metal rapid prototyping is also there stainless steel is used we look various component which made by FDM and METAL R.P.



FDM



RAPID PROTOTYPING

Metal rapid prototyping is a manufacturing technology that turns digital design into solid 3D object. The object to be printed is first scanned to create a CAD modal where changes can be made in the object design if required.

Ones the necessary changes are done, the CAD file are converted in to .STL format, which can be understood by a 3D printing machine to print object using metal powder.

Thorough 3D printing, the part/prototype can be produced in days or weeks instead of months and years, The prototype parts can be of many applications in various industries such as

automotive, industrial equipment, medical, consumer product, aerospace & defence, oil & gas, and dies & tools.

PARTS MADE BY THE FDM :

Plastic torch

Impeller casing

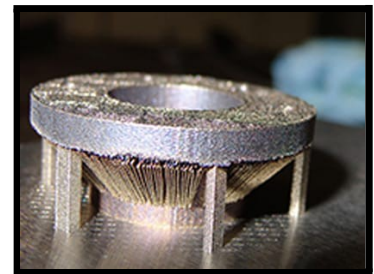
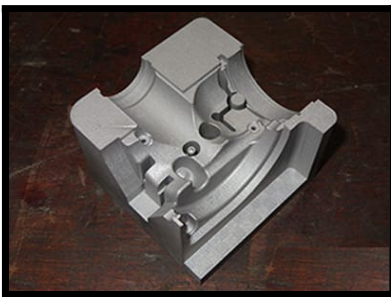
Water R.O.

Plastic casting

Fan casing

Vegetable lights

etc.



PARTS MADE BY FDM & METAL R.P.

It was a great experience for us, many things we learn from IGTR which is very difficult to explain in words on this paper but i tried to format my all experience and learning in this report, I hope that type of visit and learning programs to be done in future.

Special Thanks to Team LDCE, Prof. A.G.MOMIN SIR for organizing and guiding this visit and make it successful as well as thanks to Prof. D K Patel sir, Prof. S. B Shah sir.

