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A Report on

Workshop on
“Hands on Experience of 3D Printing Technology”

Organized by
Mechanical Engineering Department
&
IQAC Cell
on

19/09/2022 & 20/09/2022

Gandhinagar University

Academic Year 2022-23

Level:- College

Category:- Workshop

Date:- 19/9/2022 and 20/09/2022 (2 Day)

No. of Resource Person: 2

No. of Participants:- 29

Coordinator and Co-coordinator name:

Prof. Jatin M Patel (Coordinator)

Prof. Dhaval P Patel (Co-Coordinator)

Mode:- Offline

Objective:

3D Printing technology is one of the most popular manufacturing processes in the industry. As an engineer, a student should be aware of advanced manufacturing process like 3D printing. To fulfill this skill in the students, a training workshop on programming in ultimaker Cura and operate modeling software like Solidworks & Tinkercad and practical session on 3D printing machine to make different part as application has been organized. This program will help students with their projects, competitions and create better career profiles.

About Expert Session: - This session was organized by the Department of ME, GIT and GU- IQAC. All the students of GU had participated in this session. Total 29 students of different branch took the benefit of the session. The session was very interesting, and participants actively interacted with the expert. The session had successfully met the objectives for which it was planned and organized.

About Workshop:

This workshop was organized by the Mechanical Engineering Department and IQAC Cell of Gandhinagar University. 29 students have participated in this workshop. The goal of the workshop was to enhance the caliber of students for a recent requirement in the field of Manufacturing Process. The event has been divided into Six expert session. The first session is about introduction different additive manufacturing process and introduction of 3D Printer. The second session is about Solidworks & Tinkercad CAD tool in which how to operate different part modelling command to make 3D part as per requirement. The third session on hands on experience for students to create their own keychain 3D model. The fourth session on day two is introduction to 3D printing hardware and software to aware about slicing of 3D model for printing. The fifth session was hands on experience for student to slice their created 3D model and ready for 3D printing. The sixth session is about practical on 3D Printer to make different mechanical part or article like key chain and understand how to operate machine.

Session wise content:

Session-1: Introduction

In the first session, the session was started by Prof. Jatin M Patel by delivering the introduction of 3D Printer and their importance in the industry. Prof. Jatin M Patel introduced

the additive manufacturing to the student and aware them of the importance and application of the 3D Printer.



Prof. Jatin M Patel has given the basic introduction



Prof. Jatin M Patel delivered the introductory session regarding the importance of 3D Printer in the industry

Session-2: Solidworks/Tinkercad CAD Tool

In the second session, the session was started by Prof. Dhaval P Patel by delivering the introduction of modeling tools and their importance in the industry. Prof. Dhaval Patel introduced the Solidworks software to the student and aware them of the importance and application of the Solidworks. Participants have been given 60 minutes to complete the part modeling. Based on the time taken to complete the part modeling points have been given to the participants.



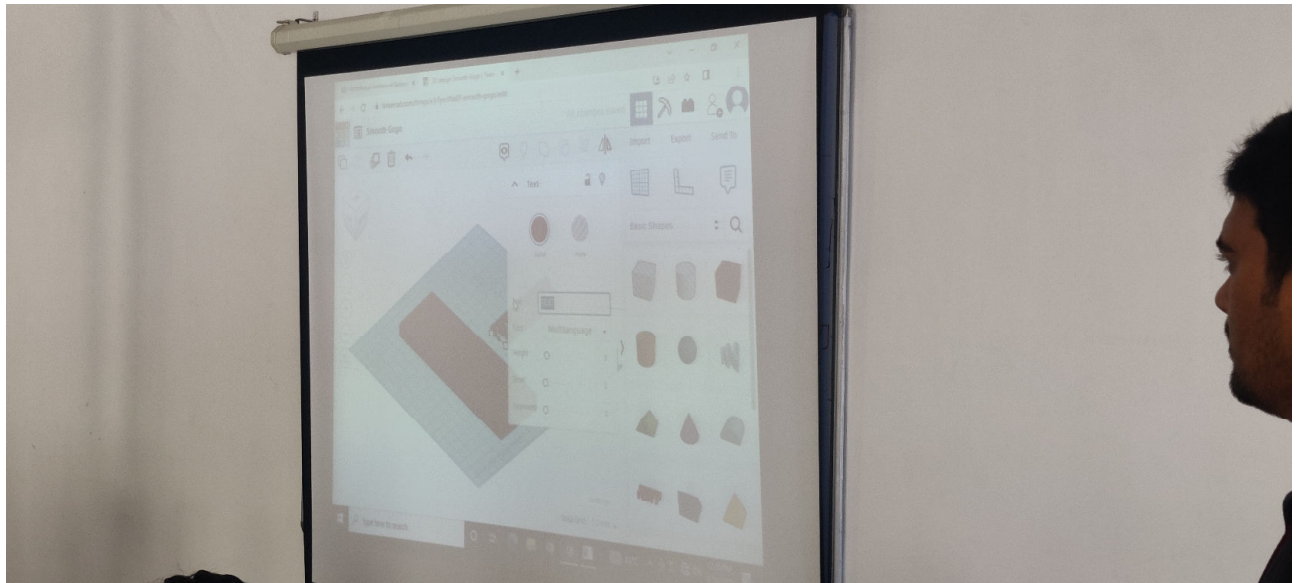
Prof. Dhaval P Patel has given the basic on Solidworks



Making different 3D Model component on Solidworks

Session-3: Hands on Experience of Solidworks/Tinkercad CAD Tool

In the third session, the session was started by Prof. Jatin M Patel by delivering the introduction of basic setup of software in PC. Participants have been given 60 minutes to complete the part modeling given as a practice EGD model. Based on the time taken to complete the part modeling points have been given to the participants. After completion of given 3D model, student have hand on practice of 3D Modeling, and they design their own keychain 3D model for 3D Printing.



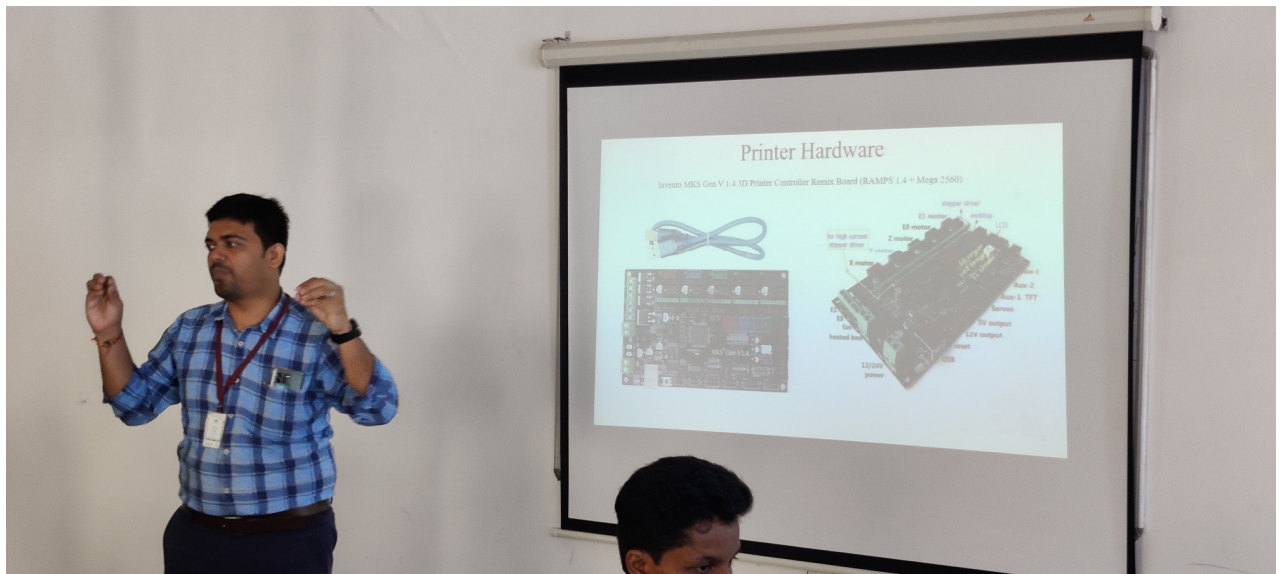
Making different 3D Model component on Tinkercad



Students are making their own 3D keychain model

Session-4: Introduction to 3D Printer hardware and Software

The fourth session was started by Prof. Jatin M Patel by delivering the introduction of basic information of 3D printer hardware and software. Participants learn about hardware of 3D printers and how they connected to each other And how they work Also, they aware about the 3D printing materials and its application. Students were aware about how to operate 3D printer. What are key point required to maintaining machine? Make key chain as per practice on second session in Solidworks/Tinkercad.



Prof. Jatin M Patel has given the basic on 3D Printer Hardware

Session-5: Hands on experience of 3D printer software (CURA)

The session five was Hands on experience of 3D printer software (CURA). Students are processing and preparing their 3D key chain model for 3D printing on machine as per specification of Printer.



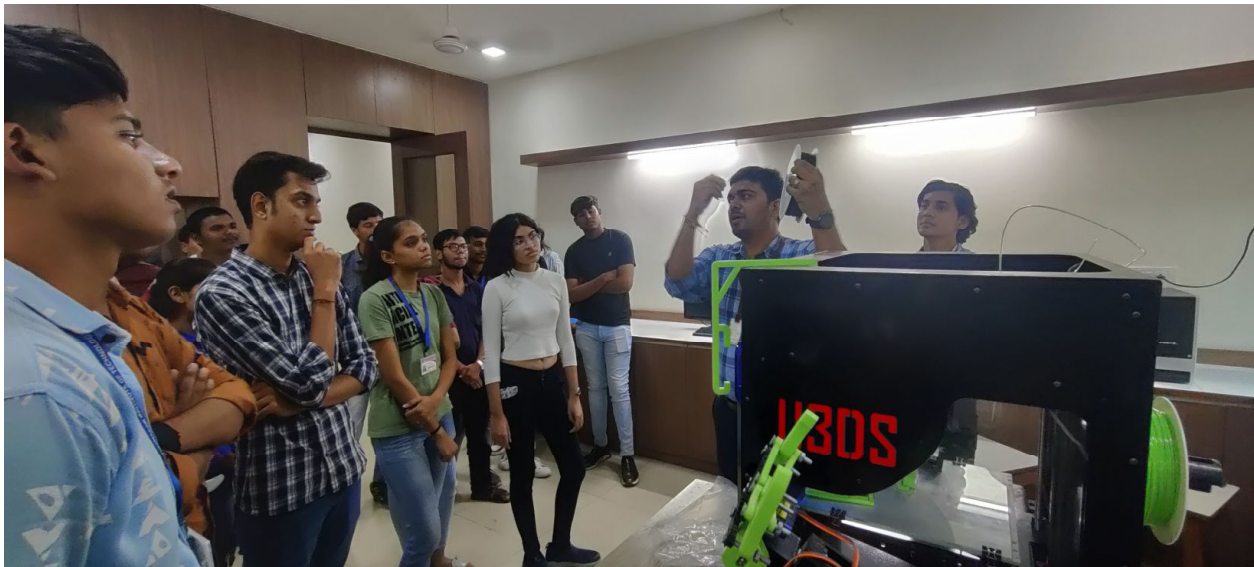
Students have hands on experience on 3D Printing software (CURA)

Session-6: Hands on experience on 3D Printer

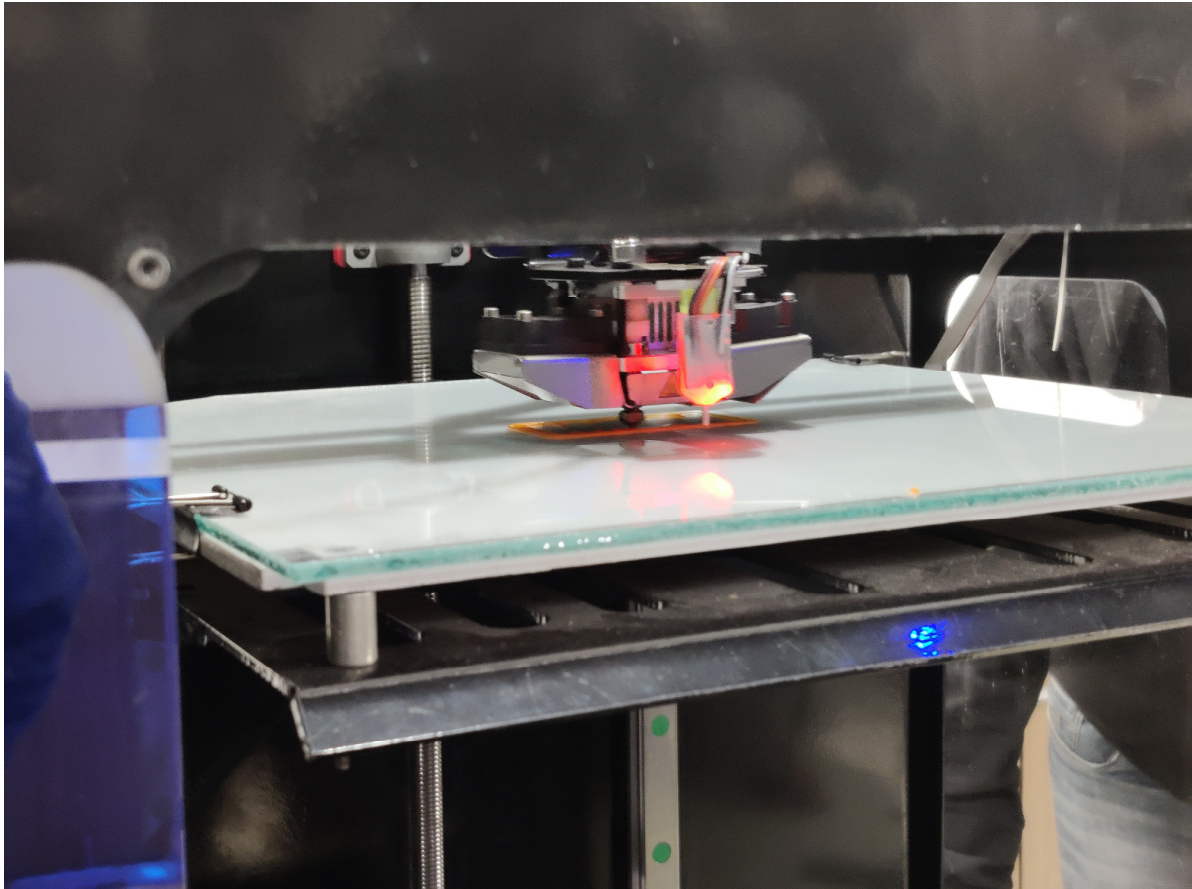
The session sixth was started with hands on experience on 3D printing machine. Students started to print their own design keychain on 3D Printer, and they are very surprised to see working of 3D Printing process and motion of various component of 3D printer. They are clicking photos and videos of 3D design printing process of keychain.



Prof. Jatin M Patel explain about 3D Printed project completed by seniors' students



Participants understanding the 3D Printer Machine



3D Printing process

Outcome:-

After completion of the workshop, students were come to know about the use of 3D Printer for industrial applications. They have studied all the fundamental modules of the 3D Printer, such as Cura and Solidworks/Tinkercad software. Very good feedback has been obtained from the students regarding their gain during the workshop.