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WORKSHOP REPORT

ON

3D Printing Design – Additive Manufacturing

Department of Electronics and Communication Engineering organized ***a Two days Workshop on "3D Printing Design – Additive Manufacturing" under Robotics and Industrial Automation Laboratory(Robo Club)***. In this workshop, students had to design and prove their endurance in a design of 3D model using **TinkerCAD** software designed from scratch. This was conducted and coordinated by Prof. L. David William Raj (AP/ECE) and Dr. Subhradip Mukherjee (AP/ECE). **51** students from Various departments 2nd and 3rd Year participated in this workshop. The program was started at 10.00 AM on 20th March 2025.

The program's chief guest was Sanjay L, Technical Lead at Fracktal Works in Bengaluru, Karnataka, India. Prof. L. David William Raj, MVJCE, welcomed him.

Guest is Welcomed by Prof. L. David William Raj in Robo Lab

A total of 51 participants listed in the event with the theme of designing umanned ground vehicle. For the students, this was an opportunity to apply their technical knowledge in practical situations, and thereby even learn soft skills like solo design, perseverence and sportsmanship.

Day 1: (20.03.2025)

The first day began with a comprehensive introduction to 3D printing technology, covering its history, evolution, and current applications across various industries. Participants were introduced to the basic workflow of 3D printing, from initial design concept to final printed object.

Introduction to 3D Printing Technology by Sanjay L, Chief Guest, Fracktal Works, Bangalore

Introduction given by Chief Guest about Tinkercad software on Day 1 (20.03.2025)

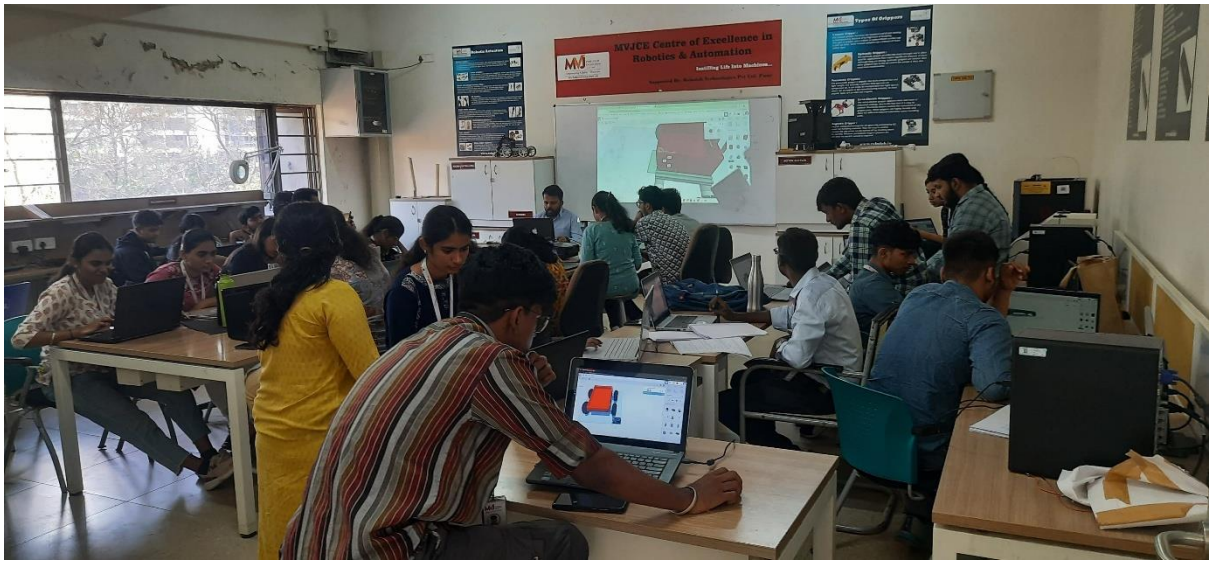
This introductory session established a solid foundation of knowledge regarding 3D printing technology, which was essential for understanding the design considerations discussed in subsequent sessions. Participants gained clarity on the capabilities and limitations of different printing technologies, which directly informed their approach to design.

The afternoon focused on the principles of Design for Additive Manufacturing (DfAM), emphasizing how design considerations differ from traditional manufacturing methods. This session addressed the unique capabilities and constraints of 3D printing and how they influence design decisions.

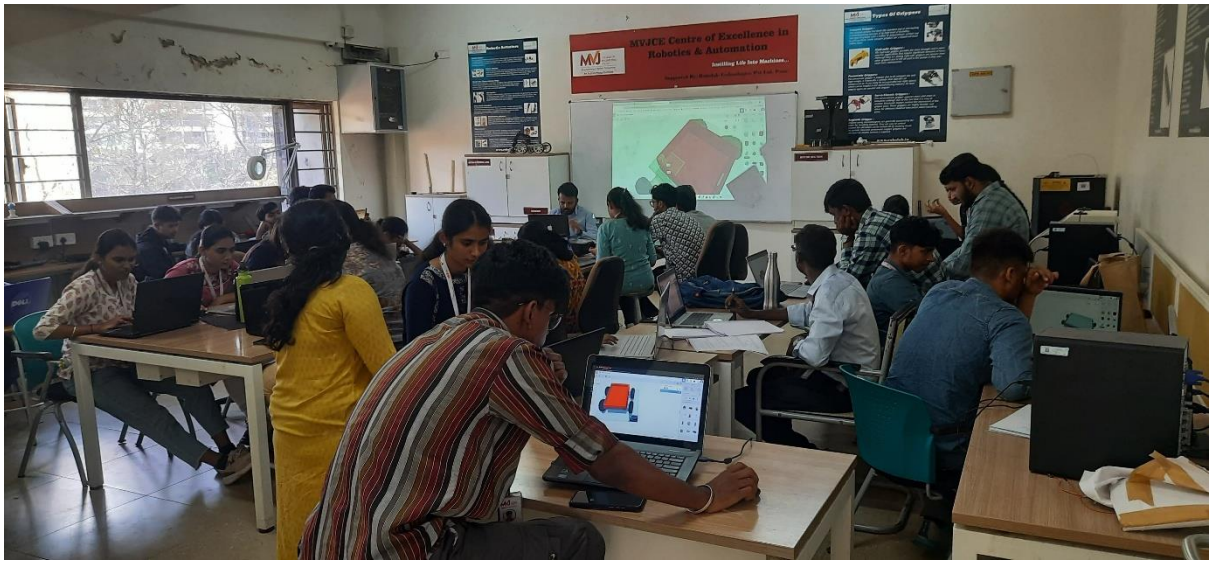
Hands on training session on basic blocks using Tinkercad.

Day 2: (21.03.2025) Hands-On Project Initiation

Every participant designs a solo project using a given model. The workshop was based on creativity, perfection, and adherence to the theme (Unmanned Ground Vehicle).



Designing basic ground vehicle



Designing Ground vehicle inclusion of motors and wheels

The two-day 3D Printing Design workshop successfully achieved its objectives of providing participants with both theoretical knowledge and practical skills in design for additive manufacturing. The progression from basic concepts to advanced applications created a comprehensive learning experience that participants could immediately apply in their respective fields.

Participants received certificates from chief Guest

Outcomes:

1. The students put in lot of thought to design a 3D model with a good shape, size, and texture. Many such variables are considered by students while designing a 3D model for the 3D design competition.
2. After completing the workshop, individuals are equipped to design and produce their own 3D printed objects, which can be applied in real-world projects or personal endeavours.

3. Workshops often include sessions where attendees can print their designs, enhancing their practical skills in operating 3D printers and troubleshooting common issues.