



# Advanced Aeromodelling Workshop Event Report

**Event Name:** Advanced Aeromodelling Workshop

**Organized by:** Aeromodelling Club, MNIT Jaipur

**Date:** January 23-24, 2026

**Venue:** LT-02 Metallurgy Department, MNIT Jaipur

**Participants:** Students from multiple years, Club Members, Faculty  
Advisors

# 1 EXECUTIVE SUMMARY

The Advanced Aeromodelling Workshop built upon the experience gained by attendees during previous workshops held earlier during the current academic year. The two-day event was centred around hands-on experience in working with more complex material and propulsion systems than before; namely, balsa wood and an internal combustion engine. Workshop safety and activities were mentored by esteemed Prof. Amit Tiwari, AMI (Aeromodelling Instructor), Uttarakhand

- **Event Status:** Completed Successfully
- **Format:** Educational Workshop (Individual, Hands-on)
- **Key Achievement:** Participants gained experience on the handling and tuning of 2-stroke methanol internal combustion engine, an alternate propulsion method to BLDC motors. Participants also learned to work with balsa wood, which is a widely preferred material choice for fixed wing aero-models due to its light weight and flexibility.

## 2 EVENT OVERVIEW

### 2.1 Objectives

The primary aim was to bring exposure to participants about high-performance material and propulsion options beyond polystyrene/corrugated plastic sheets and BLDC motors. Key objectives included:

- Learning about the principles of 2-stroke piston engine.
- Familiarization with safety precautions and handling emergencies related to the operation of internal combustion engines.
- Creating a test bench to validate the internal combustion engine as well as the methanol fuel supply and throttle system prior to flight.
- Construction of fixed wing airframe using balsa wood. This material requires additional precautions and steps (such as sanding and vinyl covering) when compared to polystyrene and corrugated plastic sheets.

### 2.2 Event Scope

<b>Duration</b>	10 Hours
<b>Eligibility</b>	Open to all students interested in fixed wing aeromodelling and propulsion.

**Hardware** Balsa wood (including laser pre-cut components as well as uncut sheets), vinyl sheets, 2-stroke methanol nitro engine, servos, BLDC motor, ESC, flight controller, and enabling stationery

### **3 TECHNICAL CONTENT & EXECUTION**

#### **3.1 Propulsion**

Prof. Amit Tiwari provided an overview of the working principle of 2 stroke engines and its operation, as well as of the associated systems. This included:

- Assembly of entire propulsion system including the engine, fuel storage and piping, propeller and remote-controlled throttling.
- Construction of engine test bench to verify engine starting prior to flight. Engine starting using starter motor and hand cranking were discussed
- Methanol fuel preparation (regarding fuel-lubrication oil ratio) and its safe handling.

#### **3.2 Airframe (Material)**

Participants engaged in constructing a fixed wing airframe using balsa wood for the first time. Participants were divided into teams, each assigned a separate section of the airframe to work on.:

- Panels were cut from raw balsa wood strips as per the provided dimensions. Some components had already been laser-cut at Prof. Amit Tiwari’s workshop
- To provide surface finishing, the panels were sanded over two stages.
- One team handled tasks related to electronics, such as servo wirings and integration to flight controller.
- To protect balsa wood panels from environmental factors, vinyl covering was applied on all external panels using heat method.

### **4 OPERATIONAL METRICS**

<b>Metric</b>	<b>Details</b>	<b>Status</b>
Participation	Individual (Laptop required)	High Engagement
Resource Cost	Low (Open-source software)	Within Budget
Tech Support	Helpers available for troubleshooting	Effective

## 5 LEARNING OUTCOMES

By the end of the session, participants gained practical exposure to:

- Internal combustion engine components & assembly
- Working principle of 2-stroke nitro engines
- Tuning, starting & maintenance
- Working with balsa wood, including surface finishing by sanding and vinyl covering

## 6 KEY PERSONNEL

The event was coordinated by the Aeromodelling Club:

- Dhruv Bansal: +91 90232 83657
- Priyanshu Pal: +91 82186 51442

## 7 EVENT GALLERY



