

HAND LAUNCH GLIDER WORKSHOP

Introductory session deals with laying foundation of aero modeling and flight dynamics in lucid manner. It enables all of them to accomplish their long awaited dream of flying gliders.

Topics Covered in the Session:

- Fundamentals of glider
- Various parts of glider
- Design of a glider
- Aerodynamics of a glider
- Stability of a glider
- Assembling all parts of a glider
- Efficiency of a glider
- Launching techniques

Content

The main essence of free-flight is that the aircraft have no need for external control. Their stability is mainly achieved by a combination of design and trim i.e., the relationship between centre of gravity, wing and tail plane incidence.

The main parameters on which the perfect designs of it are judged are “MINIMUM WEIGHT, MAXIMUM WING AREA AND TIME OF FLIGHT.”

There are 4 different types of free flight models. They are :

1. Gliders (hand launched)
2. Rubber powered (distance based judging)
3. Power (CO₂, methanol fueled gas engine or electric)
4. Indoor (distance based judging)

This workshop mainly deals with Indoor gliders:

The main characteristic features are:

- **No onboard motive power**
- **Only energy inputs are launch and rising air encountered by it during flight.**
- **Our glider should also withstand external weather conditions, so performed indoor only.**
- **This deals with how to make a chuck glider in terms of design, fabrication and assembly of all parts of the glider and their significance in order to understand the dynamics of an air-plane.**

Workshop Details

Total Duration: 6hours

Day 1: Session 1: 2hours

Topics Covered: Complete theory

Day 2: Session 2: 3 hours

Topics Covered: Practical Session and final competition.

Kit Content

- Balsa wood
- Epoxy Glue
- M-Seal
- Pencil
- Scale
- Sand Paper
- Cutting Knife

Cost

Rs. 600 per team

Maximum participants per team: 4

Design Procedure

Thumb Rules

- Length of the wingspan should be between 30-35cms.
- Aspect ratio of the wingspan should be 6-7.
- Length of the fuselage is 0.7-0.8 times the length of the wingspan.
- Area of the horizontal stabilizer = 25 % of area of the wing.
- Area of the vertical stabilizer = 12.5 % of area of the wing.
- Aspect ratio of horizontal stabilizer is between 3 and 4.
- The centre of gravity of chuck glider is $\frac{1}{3}$ rd of the distance of the width of the wing from the leading edge.

Event Organizers:-

N.Srinivasa Rao Mobile No:-8500273678

U.H.S Srinivasa Raju Mobile No:-9581126462

Ch.Rajesh Mobile No:-9581848177

Registrations:-

All the students can confirm their team by paying money of Rs 600 in ST-09 from 5PM-7PM on 6-4-14

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