SPACE DEVELOPMENT NEXUS

Workshop Proposal For

MODEL ROCKETRY

Sharpen Your Skills, Enrich Your Knowledge And Be Ready For The Battle Of Knowledge!

WORKSHOP INTRODUCTION

A rocket is a launching vehicle used to carryout various space exploration missions such as launching an artificial satellite, human space flight, robotic space probe etc. SDNx Model Rocketry Workshop is aimed to reveal the physical science and technology behind designing a rocket. This workshop is synthesized to provide practical exposure on model rocketry.

The workshop involves the design and fabrication of a model rocket. It will enable participants to practically understand the aerodynamics, trajectory calculations, propulsion, propellant selection and scientific principles involved in rocket design.

WORKSHOP INFORMATION

Workshop Title: SDNx Model Rocketry Workshop
Length: Two Day Workshop (10 Hours)
Proposed Date: First Week Of March

COURSE HIGHLIGHTS

- ✓ Complete designing and fabrication of model rockets by the participants.
- ✓ Discussion on rocket principles and material selection for designing a rocket.
- ✓ Practical knowledge gained from the program will help participants to take up B. tech/M. tech projects easily.
- ✓ Good multimedia content to help students grasp the content easily.

COURSE STRUCTURE

✓ **Lecture:** The lecture helps the participants understand the physics behind rocket functioning with interactive sessions. The lecture also covers topics like astrodynamics, trajectory equations, propulsion system, orbital mechanics, space mission requirements, payload selection and material selection.

✓ **Design**: The participants design a model rocket under the guidance of experienced instructors. We provide a software base platform to design the rocket with this approach we encourage our participants to think and come up with innovative rocket designs.

✓ **Fabrication:** The participants will give a physical form to their designs.

- ✓ **Testing:** The rocket design and fabrication will be tested by our instructors.
- ✓ **Launching:** After the careful inspection and testing of the rockets the get launched with a pre-determined altitude scale.

TOPICS COVERED

- ✓ Rocket Dynamics
- ✓ Material Variations in Rocketry
- ✓ Rocket Stability Equation (Barrowman Equations)
- ✓ Aerodynamics
- ✓ Astrodynamics
- ✓ Orbital mechanics
- ✓ Trajectory Equations
- ✓ Propulsion System
- ✓ Type of propellants
- ✓ Rocket Anatomy
- ✓ Payload selection
- ✓ Recovery System

KIT CONTENT

- ✓ Nose Cone (Material Used Polypropylene)
- ✓ Rocket Body Tube (Material Used Polyvinyl Chloride)
- ✓ Fins(Material Used Glass Fibre-G10)
- ✓ Rocket Motor(Range 500 Meters)
- ✓ Parachute Ejection System
- ✓ Parachute(Material Used Nylon)
- ✓ Propellant(Industrial Grade Potassium Nitrate and Sucrose-KNSu)
- ✓ Small Sat Payload

COSTING

Without Kit – 1000 INR per Participant.
With Kit- 2000 INR per Participant
*the kit will be given to the whole team not to any individual.
*each team should have exact five members not more not less.

With Regards

Sanjay Rathee
(Founder, SDNx-INDIA)