CONSCIENTIA 2K 22

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY

ADVANCED MODEL ROCKETRY WORKSHOP

INDIA'S FIRST SOLID FUEL MOTOR POWERED ROCKETRY WORKSHOP

ORGANIZED BY

ROCKETEERS
nuts about rockets
OFFICIAL ISRO MERCHANDISE PARTNER

- Build and Fly Model Rockets
- Use Launchers and Remote Ignition systems
- Understand engineering principles to design any Rocket

05TH TO 07TH NOVEMBER 2022

VENUE: IIST, TRIVANDRUM

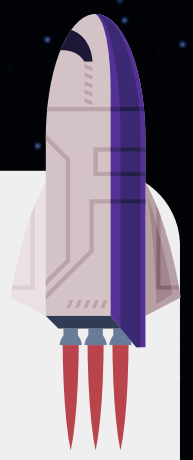
SCAN TO REGISTER

OR KNOW MORE

For further details, contact

Akash : 6369312390

www.conscientia.co.in



Greetings!

India is one of the leading space-faring nations of the world. As ISRO supports more and more privatization, we aim to help build the ecosystem that acts as the primary growth driver and talent pool. We will build for this industry the rocket scientists it needs and deserves.

We will give students across the country a platform and a clear path to learn, buildd and develop their abilities and skills to become rocket scientists of tomorrow, who will now go on to colonize Mars and cross newer frontiers than ever before. We will provide turnkey educational solutions that will incorporate experiential (hands-on) learning-based STEM education with a scientifically designed curriculum, experiments, and projects to students and educational institutions across the country. The whole process will be tech-enabled from engagement and processes to activities and lectures. We aim to make rocket sciences accessible, fun, and intuitive.

Bringing the dream of rockets and space science closer !

Workshop Structure

Day 1

1st Session | Model Rocketry Introduction | 1 Hour

2nd Session | Theory | 2 Hours

3rd Session | Flagship Model Rocket Assembly | 2 Hours

4th Session | Launching Model Rockets | 2 Hours

5th Session | Q & A, Feedback | 30 Minutes

Day 2

1st Session | Stability of Rocket | 1 Hour

2nd Session | Design and Simulation of Your Own Rocket | 1 Hour

3rd Session | Assembly of Approved Designed Rockets | 2 Hour

4th Session | Launching of Approved Designed Rockets | 2 Hour

Day 3

Q&A, Prize distribution and feedback session

CURRICULUM

Rocketry Basics

Motion, Speed and velocity, Acceleration, Equations of motion for uniform acceleration, Projectile motion, Fluid resistance and terminal speed, Forces, Free-body diagrams, Newton's laws of motion, Work, energy and power, Kinetic energy, Gravitational potential energy, Fluid dynamics, and Bernoulli's Equation.

Aerodynamics

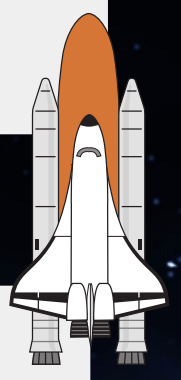
Understanding airflow, Concept of forces, Concepts of Lift and Drag and associated application, Airplane vs Rockets, Application of aerodynamics to model rocketry

Propulsion

Different kinds of engines, Basic theory of propulsion, Concepts of weight, thrust, momentum, pressure, Specific impulse, lift-off, etc, Comparison with real-life examples in balloons, air rockets, and launch vehicles, Application of propulsion to model rocket engines.

Mathematics

Application of quadratic equations, Trigonometry, Heights and distances, Calculus, Statistics.

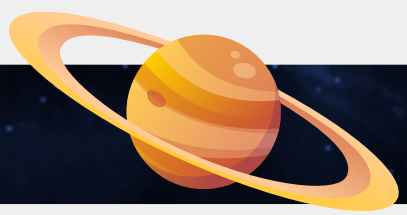


Flight Mechanics

Understanding forces, aerodynamics and propulsion and applying them to launch vehicles and model rocketry, Understanding the basics of flight, different phases of flight like powered ascent, coasting, reentry, terminal velocity, controlled vectored ascent (satellite launching), etc.

Stability

Understanding the Stability concept and why it is the most important concept in model rocketry, Science of CG and CP, how stability plays an important role in making a rocket fly straight, Application to flight mechanics, measuring CP.



Design Concepts

In order to design their own rocket, students learn various facets of design under Aerodynamics and Stability with Propulsion as a constraint. Various design concepts regarding nose cone and fins, staging, multiple motors, aerodynamic drag, moving CP and CG for stability, length and diameter of rockets, etc are discussed and a Systems Engineering feel of the system is provided. This helps students in converting all the physics principles and equations into real-time problem-solving in making the best rocket.

Pricing

Registration fee : Rs. 1000 per head

For further details, contact:

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For registration, scan QR above or visit

https://www.conscientia.co.in/register

HURRICANE + BULK KIT @

₹ 3122

Kit is compulsory for the workshop and can be bought either individually or as a team of max. 4 members.