

भारत अंतरिक्ष अकादमी

अंतरिक्ष शिक्षा विभाग (आईएसडब्ल्यू)

बी ए/14 बी जनकपुरी

नई दिल्ली - 110058, भारत

दूरभाष संख्या : 011-44749707, 8130317917

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India Space Academy

Department of Space Education (ISW)

BA/ 14 B Janakpuri

New Delhi - 110058, India

Telephone no: 011-44749707, 8130317917

Email : info@isa.ac.in, contact@isa.ac.in

Website: www.isa.ac.in

Ref: ISA/IND/RSE/116/2025

Date: 09 September, 2025

From

Director,
India Space Academy,
New Delhi.

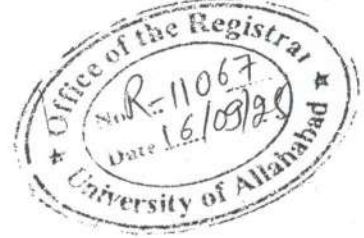
To

Registrar, Vice Chancellor, Principal,
All Central Universities, State Universities, Deemed Universities,
State Private Universities, Colleges, Institutions,
All States - India.

Dean(Science)/Director, ZEDS

17/09/25

REGISTRAR
नलसचिव



Subject: Regarding the registration of students and faculty of your University/College/Institution for One-Day Online Workshop on "Rocket Science and Engineering"

Respected Sir/Madam,

Rocket science has always been at the core of space exploration, enabling humanity to reach beyond Earth's atmosphere and explore the Moon, Mars, and beyond. With India's ambitious Gaganyaan mission and the continuous advancement in satellite launches, propulsion systems, and reusable rockets, Rocket Science has emerged as one of the most vital fields in modern science and engineering.

The Government of India, under the visionary leadership of **Honorable Prime Minister Shri Narendra Modi Ji**, is driving major reforms in the space sector to strengthen India's role in global space exploration and industry. Progress in advanced propulsion technologies, private participation, and commercialization of space has opened up exciting career and research opportunities for students, educators, and professionals.

In alignment with the vision of **Viksit Bharat**, India Space Academy, an autonomous part of India Space Week, is delighted to announce a One-Day Online Workshop on Rocket Science. This workshop will provide students and faculty with insights into the fundamentals of rocket design, propulsion systems, launch vehicles, and the future of rocketry in India and worldwide. It aims to equip participants with the knowledge and inspiration to contribute towards India's growing space ecosystem.

Workshop Highlights:

- Introduction of Rockets and Space Shuttles
- Fundamental of Rocket Propulsion
- Rocket Design & Engineering
- Aerodynamics & Flight Dynamics
- Rocket Avionics
- Satellites & Payloads
- Emerging Technologies in Rocketry
- Students and Expert Interaction

Dr. Sudhir K. Singh
for na Please
H K Singh

19/9/2025

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Website: www.isa.ac.in

Important Updates:

Date and Time Workshop: 05th October 2025(Sunday) at 11:00 AM

Mode: Online (Virtual Workshop)

Duration: 2.5 hrs (150 Min)

Venu : Zoom Platform

Language: English

Eligibility: Open to Students, Faculty, Researchers, Architects, Engineers, and Space Enthusiasts

Tuition Fee: ₹250/- (Students)

Certificate: Participants will receive a digital Certificate.

Registration:

Start Date: 05th September 2025

End Date: 30th September 2025, till 11:55 PM

Registration Link: <https://workshop.indiaspaceweek.org/rocket/>

We request all Universities, Colleges, and Institutions to kindly circulate this information among students and faculty members and encourage their active participation. This workshop will not only enhance technical knowledge and practical skills but also inspire the next generation of space scientists, engineers, and innovators.

Your support in ensuring wide participation will contribute to strengthening India's position in global rocket science and space innovation

भवदीय

निदेशक/Director

भारत अंतरिक्ष अकादमी/India space Academy

नई दिल्ली/New Delhi

निदेशक कार्यालय/Director Office

भारत अंतरिक्ष अकादमी/India Space Academy



Rocket Science and Engineering Workshop

Organized by India Space Academy
under the Department of Space Education of India Space Week.



About Us



India Space Academy is an academic institution under the Department of Space Education of India Space Week.



India Space Week is an autonomous body with support from central and state governments. The role of India Space Week is to promote space education and employment among the students, teachers, and research scholars of schools, colleges, universities, and institutions.

The academy develops workshops that spread awareness about the current requirements of the space industry. Also, it develops various programs to equip the students with the right information, skills, practical exposure, research exposure, and training to make them future-ready.



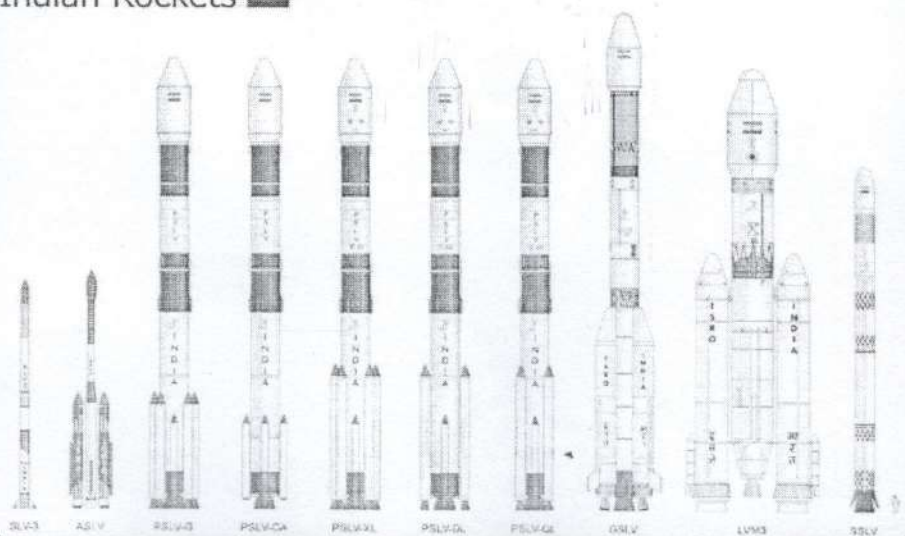


Introduction



Rocket Science and Engineering is the study and application of scientific and engineering principles to design, build, and launch rockets and spacecraft. It combines disciplines such as physics, mathematics, thermodynamics, fluid dynamics, materials science, and control systems. This field plays a vital role in space exploration, satellite deployment, and defense systems. Engineers and scientists work together to develop efficient propulsion systems, lightweight structures, and precise navigation technologies. With the growing interest in commercial space travel and planetary missions, rocket science continues to push technological boundaries, making space more accessible and advancing our understanding of the universe.

Indian Rockets 



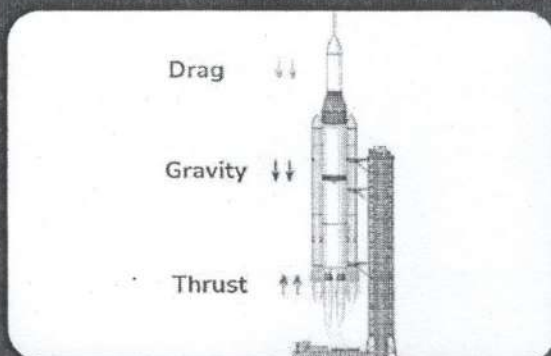


Workshop Highlights



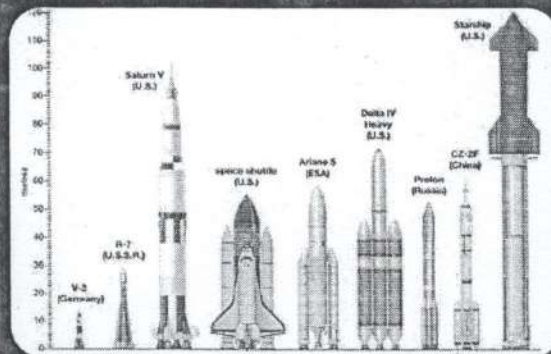
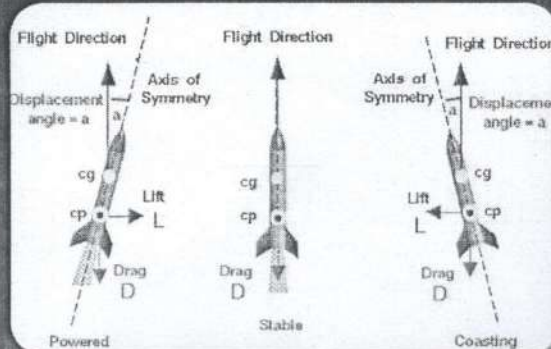
• Introduction of Rockets and Space Shuttles

Rockets and space shuttles are powerful vehicles used to explore space. Rockets launch satellites, astronauts, and equipment beyond Earth's atmosphere, while space shuttles were reusable spacecraft designed for missions like satellite deployment, research, and space station support, advancing space exploration.



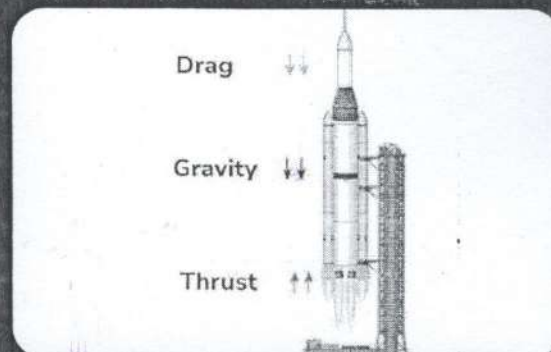
• Rocket Design & Engineering

Rocket design and engineering involve creating the structure, propulsion, and control systems of rockets. It covers stages, payload section, guidance, navigation, and materials used. Efficient design ensures stability, safety, and performance for launching satellites, space missions, and scientific exploration.



• Fundamentals of Rocket Propulsion

Rocket propulsion works on Newton's third law, producing thrust by expelling high-speed gases from burning fuel. It includes solid, liquid, and hybrid propellants, with efficiency measured by specific impulse, enabling rockets to overcome gravity and travel into space.



• Aerodynamics & Flight Dynamics

Aerodynamics and flight dynamics study how rockets move through the atmosphere and space. They involve forces like thrust, drag, lift, and gravity. Proper trajectory planning, staging, and orbital mechanics ensure stable launches, efficient fuel use, and successful space missions.

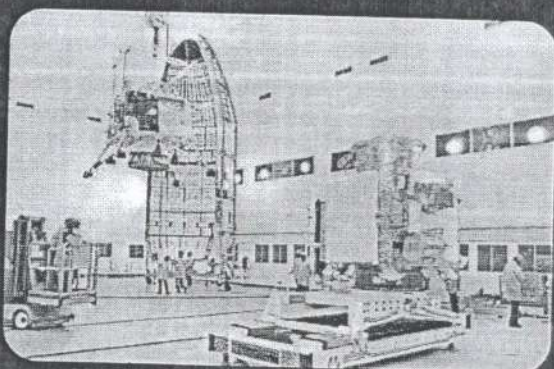


Workshop Highlights



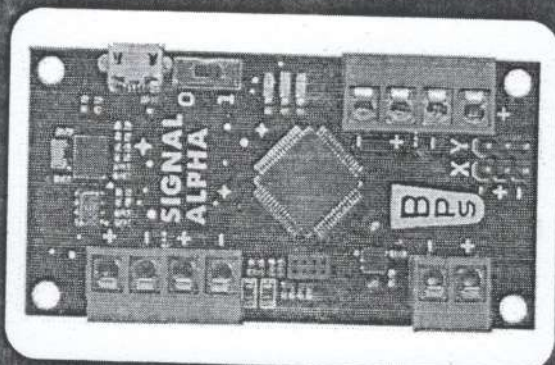
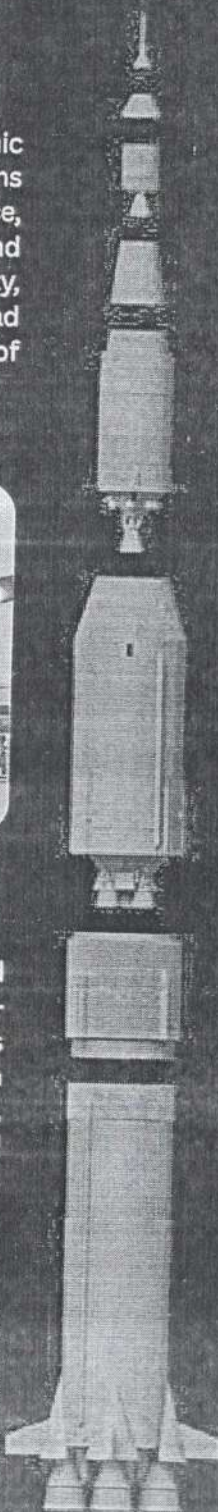
• Rocket Avionics

Rocket avionics refers to the electronic systems that control a rocket's functions during flight. It includes guidance, navigation, communication, telemetry, and control systems. These ensure stability, precise trajectory, and successful payload delivery, making avionics the "brain" of modern rockets.



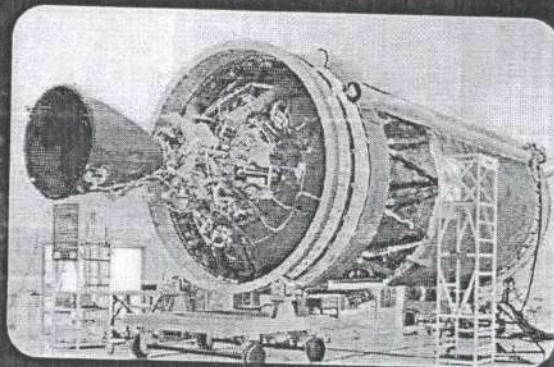
• Emerging Technologies in Rocketry

Rocket propulsion works on Newton's third law, producing thrust by expelling high-speed gases from burning fuel. It includes solid, liquid, and hybrid propellants, with efficiency measured by specific impulse, enabling rockets to overcome gravity and travel into space.



• Satellites & Payloads

Satellites and payloads are the core of space missions. Satellites serve purposes like communication, navigation, weather monitoring, and Earth observation, while payloads are the instruments or equipment they carry. Proper integration and deployment ensure mission success in different orbits.



• Students and Expert Interaction

The Q&A session will allow students to clarify rocket science concepts, explore engineering applications, and discuss propulsion, materials, safety, and careers, fostering deeper understanding and curiosity about space exploration and technology.



Programme Details



Mode: Online (Virtual Workshop)

Date: 05 October 2025, Time :11:00 am.

Duration: 2.5 hrs/150 min. (Interactive Sessions + Q&A)

Eligibility: Open to Students, Faculty, Researchers, Space Enthusiasts, and Career Aspirants

Tuition Fee : ₹ 250/-

Certificate: Participants will receive a digital certificate.

Registration

- Start Date: 09 September 2025
- End Date: 30 September 2025, till 11:55 PM
- Registration Link:
<https://workshop.indiaspaceweek.org/rocket/>



Contact Details



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