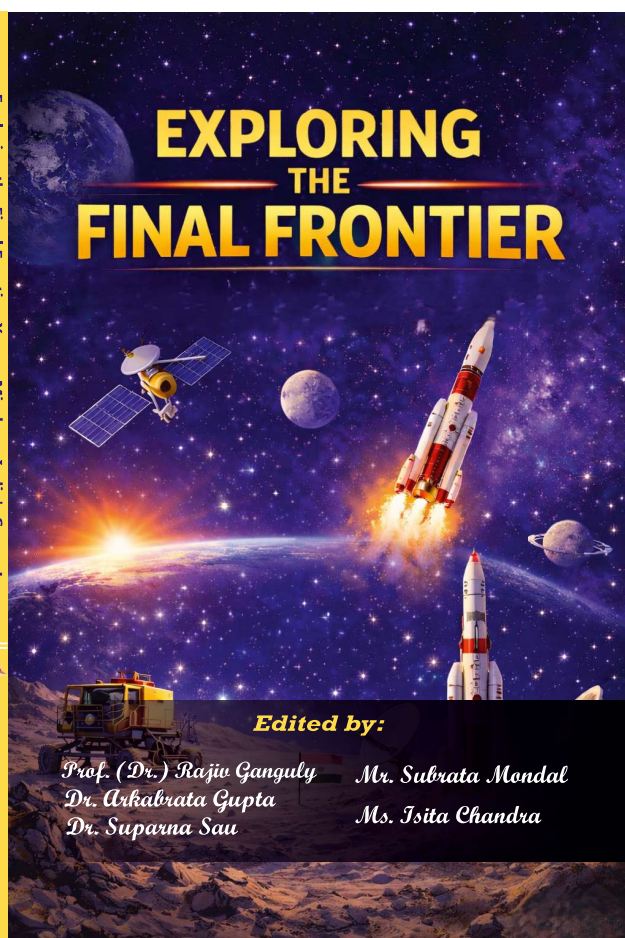




**Exploring the Final Frontier:
Young Minds on India's
Space Journey**

Exploring the Final Frontier: Young Minds on India's Space Journey

Edited by:

Prof. (Dr.) Rajiv Ganguly	Mr. Subrata Mondal
Dr. Arkabrata Gupta	Mrs. Isita Chandra
Dr. Suparna Sau	



Swaranjali Publication

Address: No -1-B, Sector 10B, Vasundhara Sector 10,
Delhi - 201012, Behind Vanasthali Public School
E-mail: swaranjalipublication@gmail.com
Website: swaranjalipublication.co.in
Contact No. +91-9810749840/870012488

All rights are reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright holder (All Editors).

Editors © : **Prof. (Dr.) Rajiv Ganguly,**
Dr. Arkabrata Gupta
Dr. Suparna Sau,
Mr. Subrata Mondal,
Mrs. Isita Chandra

Publisher : Swaranjali Publication
Sector 10-B, Vasundhara,
Ghaziabad, (U.P.) 201012

Phone : 9810749840, 8700124880

E-mail : swaranjalipublication@gmail.com

Website : www.swaranjalipublication.co.in

Book : **Exploring the Final Frontier:**
Young Minds on India's Space
Journey

Edition : February, 2026

ISBN : 978-93-6559-259-7

Price : 699/-

Printed By : Swaranjali Printers

Book Available on : www.buybox.me

Preface

The Centre of Excellence in Astronomical Studies, University of Engineering and Management (UEM), Kolkata, takes immense pride in presenting this compilation of selected essays written by students of the IEM–UEM Group on the occasion of the Celebration of National Space Day on August 23, 2025. The theme of this 2nd National Space Day was – “Aryabhatta to Gaganyaan: Ancient Wisdom to Infinite Possibilities.” The event aimed to inspire young minds to explore the wonders of space science and to reflect upon India’s remarkable achievements in space research and exploration. The enthusiastic participation and insightful essays submitted by students on topics such as Chandrayaan, Mangalyaan, and Gaganyaan reflect their curiosity, scientific temper, and admiration for India’s growing contributions to global space exploration.

This volume, titled “Exploring the Final Frontier: Young Minds on India’s Space Journey”, brings together some of the most thoughtful and well-articulated essays from the competition. Each essay is a testament to the students’ passion

for astronomy, their awareness of national progress in science and technology, and their aspiration to contribute to the nation's journey beyond the Earth's atmosphere.

We extend our heartfelt gratitude to all the participants, faculty coordinators, and reviewers who made this initiative successful. Special appreciation is due to the leadership of UEM and IEM for their continuous encouragement in promoting scientific learning and innovation among students.

It is our hope that this collection will motivate many younger learners to look up at the night sky with wonder and curiosity, and to dream of contributing to India's glorious space missions in the years to come.

Centre of Excellence in Astronomical Studies

University of Engineering and Management, Kolkata.

Foreword

Since the dawn of human civilization, man has watched the sky with a sense of awe and wonder. As man progressed along the path of civilization, the cosmos started revealing its grandeur and mysteries. But the sky and the universe continue to be a source of curiosity and mystery. As a result, all harbour a desire to reach the sky and become a part of the grand design created by nature. Thus astronomy and space science & technology have always been subjects of great interest to all students. UEM must be congratulated for the initiative taken in this direction, setting up the Centre of Excellence in Astronomical Studies and starting a minor degree programme in astronomy.

This volume presents the articles written by the students on various aspects of India's space programme. The articles are of varied type and of good academic standard, reflecting the deep interest of the students in the space programme of our country. Since India has very major aspirations in space science and technology, more bright young talents are required for reaching the desired goal. Such programmes, encourages

young students to ponder over the issues and challenges along the path of India's journey for taking a place among the centre stage players in space science and technology, are very timely and praiseworthy.

I am very hopeful that the readers will enjoy the articles compiled in this special volume.

Prof. Amitabha Ghosh
Ex-Director, Indian Institute of
Technology, Kanpur.
Emeritus Scientist
Indian National Science Academy
New Delhi

About the Event: Celebration of National Space Day

The Centre of Excellence in Astronomical Studies, University of Engineering and Management (UEM), Kolkata, organized a Short Essay Writing Competition to commemorate the Celebration of National Space Day. The event aimed to inspire students to explore the vast frontiers of space science and to recognize India's remarkable progress in space exploration and research under the aegis of the Indian Space Research Organisation (ISRO).

The competition invited students from across the IEM–UEM Group to express their thoughts, perspectives, and understanding of India's journey beyond the Earth's atmosphere. Participants were encouraged to write short essays, within a limit of 500 words, on significant themes highlighting India's space achievements.

The suggested essay topics included:

Chandrayaan-1: India's First Step on the Moon

Chandrayaan-3: India's Triumph at the Lunar South Pole

Learning from Failure: How Chandrayaan-2 Paved the Way for Success

Mangalyaan: India's Voyage to the Red Planet

Gaganyaan: India's Giant Leap Towards Human Spaceflight

The event witnessed enthusiastic participation from students across various disciplines, reflecting their curiosity, analytical thinking, and deep appreciation for India's advancements in space research and technology. Through this initiative, the Centre sought to promote scientific temper, creativity, and a sense of national pride in young learners.

This essay collection, "Exploring the Final Frontier: Young Minds on India's Space Journey" brings together a selection of the most insightful and well-articulated entries from the competition. Each essay stands as a testament to the students' enthusiasm, understanding, and aspirations to contribute to the nation's future endeavours in space science and technology.

Table of Content

Chapter - 1	1-20
--------------------------	------

Gaganyaan: India's Giant Leap Towards

Human Spaceflight

Chapter - 2	21-28
--------------------------	-------

Chandrayan 3: India's Triumph at the Lunar

South Pole

Chapter - 3	29-31
--------------------------	-------

India's First Step on the Moon

Chapter - 4	32-38
--------------------------	-------

Mangalyaan: India's Voyage to the Red

Planet

Chapter - 5	39-64
--------------------------	-------

Learning from Failure: How Chandrayaan-2

Paved the Way for Success