



Online Training cum Summer Internship Program
on
Space Radiation Shielding & Spacecraft Protection
organized by
Department of Physics, Malaviya National Institute of Technology Jaipur

Prof. N. P. Padhy
Director, MNIT Jaipur
Patron

Dr. Kamendra Awasthi
Head, Department of Physics
Chair of Program

Dr. Kavita Lalwani
Assistant Professor, Physics
Convener

Online Training cum Summer Internship Program on Space Radiation Shielding & Spacecraft Protection

Duration: June 5 to July 4, 2025 (4 weeks, 2 hours each day: 2 pm to 4 pm)

Mode: Online

Target Audience: Undergraduate, Postgraduate Students, Faculty, and Industry Professionals in multidisciplinary fields of science and Engineering (**No Prerequisite required**).

Program Overview: This comprehensive 4-week online program is designed to provide in-depth knowledge and practical skills in space radiation shielding and spacecraft protection. Participants will explore the space environment, cosmic radiation, and satellite protection mechanisms through a blend of theoretical learning and hands-on Python programming. The program aims to empower students and professionals with the computational skills necessary to simulate radiation shielding models, inspired by NASA's HZETRN (High-Z and Energy Transport) framework. Successful completion will be rewarded with a certificate to support academic and professional advancement in space science and technology.



This internship provides a platform to design and optimize radiation shielding strategies for space environments:

MOON

MARS

Low Earth Orbit

Applications: Aerospace engineering, space biology & medicine, nuclear & radiation physics, astrophysics & planetary science, data science and high-altitude Earth-based research.



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Program Highlights:

- Hands-on experience in Python programming for space applications.
- Simulation of space radiation shielding models.
- Real-time computational projects.
- Guidance from experienced mentors (IITs, NITs, and reputed universities).
- Certificate of completion.
- Awards for outstanding project execution and active participation.

Training Modules:

1. **Introduction to Space Physics:** Solar wind, CMEs, cosmic rays, Earth's magnetosphere, Van Allen belts.
2. **Data Visualization & Interpretation:** Techniques to interpret space data from space organizations (NASA/ISRO).
3. **Fundamentals of Space Radiation:** Ionizing radiation, LET, and radiation effects on spacecraft electronics.
4. **Python for Space Applications:** Basics of Python, NumPy, Matplotlib for data visualization and simulation.
5. **Modeling Radiation Shielding:** Simulation of shielding using simplified HZETRN-like models.
6. **Project Work:** Data-driven modeling or simulation of a space environment challenge using Python.
7. **AI Integration (Introductory):** Basic machine learning concepts for space data classification or trend prediction.

Registration Details: Registration Fee: INR 5000 + 18% GST (**Total: ₹5900**) (Non-refundable)

Fill registration form: <https://forms.gle/JqWZaFR67OdyMJz18>

The applicable registration fee must be deposited online as per the details below:

- **Payment Mode:** NEFT/IMPS
- **Bank Name:** ICICI Bank Ltd., MNIT Jaipur
- **Account Name:** Registrar (Sponsored research) MNIT Jaipur
- **Account No:** 676801700388
- **IFSC Code:** ICIC0006768
- **Branch:** MNIT Campus, Jaipur

Registration deadline: 31/5/2025, 5PM

For any query, contact at Email: internshipatmnit@gmail.com, Call us at: **9250913499**

OR WhatsApp @ <https://alvo.chat/61Cz>