



Olewin
Academy

An IIT Alumnus Platform

Olewin Academy
Presents

Introducing

SPACE TECHNOLOGY & SATELLITE SYSTEMS PROGRAM

FutureScope: Advanced Comprehensive
Program in Space Technology & Interplanetary
Innovation systems

Enroll by Submitting
Registration form

<https://forms.gle/RmeD5ADzmxvAuUpR8>

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Program Vision

- AI-powered Satellites
- Quantum-enhanced Interplanetary Communications
- Planetary Exploration Systems
- Space Robotics
- Space Economy Infrastructure

“Design the Future Beyond Earth – Learn to Build, Analyze, and Explore the Cosmos”

Space Technology Program that empowers engineering and science students with real-world, hands-on knowledge in astrophysics, planetary systems, space instrumentation, interplanetary communication, and satellite technologies.

To build the next generation of space engineers, data scientists, and planetary researchers by providing an interdisciplinary, hands-on training curriculum integrating space science, AI, sensors, quantum computing, satellite communication, and planetary exploration technologies.



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Instructor Profile

Bandaru Mahesh

Alumnus, IIT Kharagpur

Certified in Quantum Computing,
MIT-USA

Founder & CEO of Olewin



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Bandaru Mahesh is a visionary educator and space technology innovator with expertise in AI/ML, quantum computing, and full-stack space systems development. With a strong academic foundation from IIT Kharagpur and global certification from MIT-USA, he leads cutting-edge programs that blend science, engineering, and advanced computing to shape the future of space innovation.

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Course Objectives

- Equip learners with foundational and applied space science knowledge.
- Train students on planetary sensor systems, signal processing, and interplanetary communication.
- Enable students to design small satellites, simulate interplanetary missions, and develop onboard AI systems.
- Hands-on training on tools like NASA OpenMCT, ESA SNAP, and CubeSat simulators.
- Exposure to quantum-enhanced communication and deep space navigation concepts.



Why Space Tech?

Space exploration is no longer the privilege of only space agencies. Private space startups, quantum research labs, and AI-based planetary missions are redefining the space race. We aim to empower the next generation of engineers, scientists, and visionaries to build sustainable, intelligent, and interplanetary systems.





ELIGIBILITY DEPARTMENTS

This program is designed for undergraduate/postgraduate students and professionals from:

- Aerospace Engineering
- Mechanical Engineering
- Electrical and Electronics Engineering
- Electronics & Communication Engineering
- Computer Science Engineering
- Mechatronics/Robotics
- Physics
- Applied Mathematics
- Geology / Geophysics / Planetary Sciences
- Astronomy / Astrophysics
- Environmental Science (for remote sensing & satellite studies)

Global Exposure & Mentorship

- Industry Mentors from ISRO, NASA, SpaceX, Blue Origin, and ESA
- Guest Lectures from IITs, MIT, Stanford, and IIST Faculty
- Hackathons, Innovation Labs, and Incubation Opportunities
- Portfolio Development + GitHub Repositories



CURRICULUM & MODULES FOR 1 YEAR

Quarter 1: Space Science Foundation

- Basics of Astronomy and Astrophysics
- Orbital Mechanics & Satellite Dynamics
- Planetary Geology and Habitability
- Space Environment and Radiation
- Introduction to Space Mission Design
- Tools: Celestia, Stellarium, NASA Eyes

Quarter 2: Engineering the Cosmos

- CubeSat Design & Subsystems (Power, Comms, Thermal)
- Spacecraft Sensors and Instrumentation
- Satellite Communication and Ground Stations
- Telemetry, Tracking, and Command Systems
- Onboard Embedded Systems Programming
- Tools: NASA OpenMCT, STK, KiCad, Arduino, Raspberry Pi



CURRICULUM & MODULES FOR 1 YEAR

Quarter 3: AI, Data & Planetary Simulation

- Remote Sensing for Planetary Analysis
- Image Processing using Python (OpenCV, PIL, TensorFlow)
- AI/ML for Satellite Data Interpretation
- Planetary Simulation using Unity + NASA Data
- Interplanetary Network Design (Delay-Tolerant Networking)
- Tools: Google Earth Engine, SNAP (ESA), Unity, Python

Quarter 4: Advanced Systems & Real world Projects

- Interplanetary Communication Protocols (DTN, Ka-band, Optical)
- Deep Space Navigation and Quantum Positioning
- Quantum Communication Concepts for Space
- Final Capstone Project: Build a CubeSat prototype or simulate Mars-Earth communication
- Hackathons, Workshops, & Space Startup Incubation
- Tools: GNU Radio, Simulink, Qiskit, MATLAB, CloudSim





Foundations of Space Education

Planetary Exploration

Drives exploration and research of planets and celestial bodies.



Satellite Communication

Enhances communication technologies for space missions.



Space Science

Focuses on understanding the universe and its phenomena.



Quantum Computing

Explores quantum computing's potential in space research.



Sensors

Develops advanced sensing technologies for space exploration.

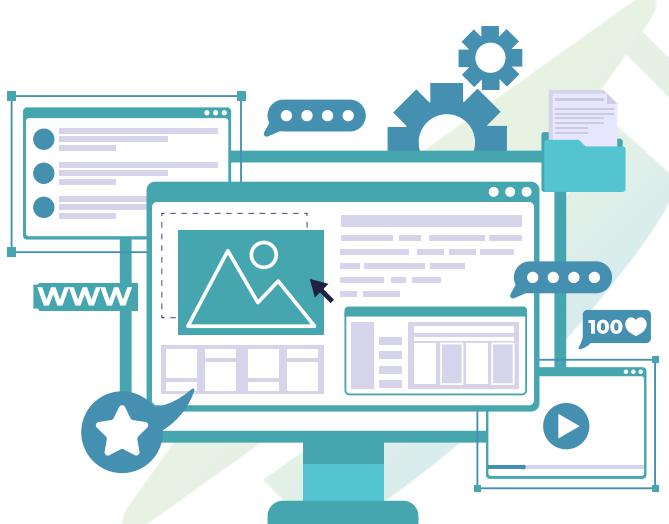


Artificial Intelligence

Integrates AI technologies for space applications.



Eligible Departments vs. Program Vision



Characteristic	Eligible Departments	Program Vision
Engineering	Aerospace, Mechanical, Electrical, Electronics, Communication, Computer Science, Mechatronics, Robotics	Space engineers
Science	Physics, Applied Mathematics, Geology, Geophysics, Planetary Sciences, Astronomy, Astrophysics, Environmental Science	Data scientists, planetary researchers
Focus	Interdisciplinary, hands-on training	Space science, AI, sensors, quantum computing, satellite communication, planetary exploration





Tools, Frameworks & Languages

Domain	Tools/Frameworks
Programming	Python, C/C++, MATLAB, JavaScript (for web GL)
Space Simulations	GMAT, NASA Eyes, Celestia, STK, OpenMCT
Remote Sensing & GIS	SNAP (ESA), QGIS, ENVI, Google Earth Engine
CubeSat/IoT Hardware	Arduino, Raspberry Pi, KiCad, CircuitSim
AI/ML for Space	TensorFlow, PyTorch, Scikit-learn, OpenCV
Communication & Networking	GNU Radio, SDR, NS-3, CloudSim
Quantum Tools	IBM Qiskit, QuTiP, SimulaQron
Embedded Systems	ARM, Keil, PlatformIO

Project Ideas

- Build a CubeSat design simulation (hardware or digital twin)
- Interplanetary Network Architecture for Moon-Mars-Earth
- AI-based Planetary Hazard Detection from Satellite Images
- Quantum-based Deep Space Navigation Algorithms
- Autonomous Satellite Data Analysis with onboard ML
 - **SpaceTech is the Project OlewinTech with Advance Intelligence models**

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Who Should Enroll?

- Engineering students (B.Tech/M.Tech) from:
- Aerospace, Computer Science, ECE, EEE, Mechanical, Civil, AI/ML, Robotics
- M.Sc/PhD students from:
- Physics, Geology, Geophysics, Astronomy, Planetary Sciences, Data Science
- Industry professionals from:
- Energy, Telecom, Earth Observation, Remote Sensing, Space Research, Quantum, Data, Defense
- Tech entrepreneurs & startup founders in AI, space, robotics, and sustainability

Certifications & Support

- Certified Full-Stack Space Application Engineer
- Letter of Recommendation + Portfolio Guidance
- Startup/Job Placement Support + Mentorship
- Live Hackathons & Demo Day Presentations
- GitHub Portfolio + Final Project Demo Reel
- LOR + Internship Assistance + Startup Incubation Support

Important Note:

This is a real-time, industry-aligned professional program designed for serious and ambitious learners aiming to develop practical expertise in space technology and intelligent systems. Participants will engage in hands-on projects, live simulations, and real-world case studies using satellite data, AI/ML models, quantum computing frameworks, and full-stack tools. You will build and deploy end-to-end intelligent applications that solve actual challenges in space communication, remote sensing, planetary systems, and interplanetary mission design, aligning directly with cutting-edge industry and research demands.





About Space Tech Program

SpaceTech is a one-year advanced training program designed to equip students and professionals with full-stack development skills focused on space technologies. The program integrates AI/ML, LLMs, Quantum Computing, Cloud, Blockchain, and GeoTech to build intelligent, real-time applications for satellite communication, planetary exploration, and interplanetary missions. Learners gain hands-on experience through capstone projects, industry tools, and cloud deployments, preparing them for careers in aerospace, defense, research, and emerging space-tech startups.

Important Note:-

- This is a real-time, industry-aligned professional program designed for serious and ambitious learners aiming to develop practical expertise in space technology and intelligent systems.
- Participants will engage in hands-on projects, live simulations, and real-world case studies using satellite data, AI/ML models, quantum computing frameworks, and full stack tools.
- You will build and deploy end-to-end intelligent applications that solve actual challenges in space communication, remote sensing, planetary systems, and interplanetary mission design, aligning directly with cutting-edge industry and research demands.

Eligibility criteria :-

- This prestigious national-level program in Space Technologies is designed exclusively for highly talented and dedicated individuals with a strong foundation in science, technology, and astrophysics — only those with exceptional passion and capability will be selected to shape the future of our country's space innovation.

Limited Intake Only

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WHAT SHOULD YOU EXPECT FROM THIS PROGRAM....?

- Recognized Certification
- Real-World Application Development
- Job-Ready Technical Training
- Placement & Job/Career Support
- Master in-demand skills tailored to meet the needs of MNCs and private sector companies making you job-ready from day one.



- Official Internship Endorsement
- Project-Based Experience
- Industry-Aligned Exposure
- Skill Application Proof
- Career Advancement Credential
- Real world Projects development with AI -Driven and deploy it as a Service model

Why Settle for Theory When You Can Build the Future?

Note:- Admissions is based on a shortlisting process. Only selected candidates will receive the opportunity to join this immersive, career-transforming journey.



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COMPANY PROFILE



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AN IIT ALUMNUS PLATFORM

Empowering learners globally with quality education
and training content for new approach to learning
paradigms

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