

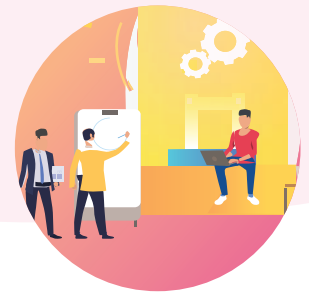
## SPACE TECHNOLOGY

We are in the golden era of Space Exploration right now! Right from building recyclable space rockets to enabling space tourism for laymen, Earthlings are now set off to becoming multi-planetary beings. Enroll in this course to unravel the mysteries of Space. You will learn to build 3D models and simulations of the functionalities, based on the concepts of space and the technology that is used for it. This course offers exposure to Tech-driven projects in 3D.

SESSION	CONCEPT	SKILLS
01	Earth & Beyond Part - 1	<b>Exploration, Observation, Creativity</b> Exploring the difference between sky and space. Contemplating on the concept of Space-Tech. Introduction to some of the common Space terminologies. Observing Earth from the Space.
02	Introduction to Roblox and Lua Scripting	<b>Logic, Creativity, Spatial Visualization</b> Cyber security, Software Set-up, Getting familiar to the 3D Game designing platform, Scripting using Lua, Fundamentals of CFrame.
03	Our Solar System - I	<b>Exploration, Observation, Creativity</b> Learning about genesis of Earth and the universe. Exploring the home-galaxy and solar system. Building 3D Solar System Model in Roblox.
04	Our Solar System - II	<b>Logic, Creativity</b> Understanding about Rotation & Revolution of planets and building Planetary Orbit using Euler's Concept by Lua Scripting.
05	Our Solar System - III	<b>Logic, Creativity</b> Understanding of Orbital Speed of different planets and stimulating the concept in the 3D Model(Solar System).
06	Our Solar System - IV	<b>Logic, Creativity</b> Understanding the concept of gravity, comparing gravities of different planets and building 3D model that represents gravitational pull on each planet by Lua Scripting.

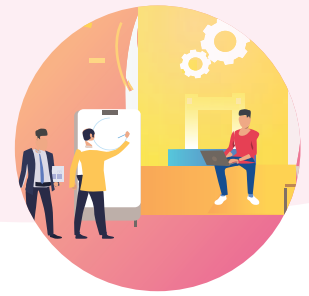


07	Our Moon - I	<b>Exploration, Observation, Creativity</b> How did the Moon come into existence? Why does moon change its shape every night ? Creating simulation of Moon Phases 3D model in Roblox.
08	Our Moon - II	<b>Logic, Creativity</b> Completing 3D Model of Moon Phases(Lua Scripting).
09	Space Exploration Journey - I	<b>Exploration, Observation, Creativity</b> What is Space Colonization? Plans for Colonizing Moon, What are Reusable Rockets? Falcon Rockets Evolution, Elon Musk's Engineering.
10	Space Exploration Journey - II	<b>Exploration, Spatial Visualization, Creativity</b> Building 3D Model of Rockets, Understanding Thrust, Mass and other parameters.
11	Knowing About Rocket's Structure & Propulsion System	<b>Exploration, Observation, Creativity, Logic</b> Understanding Combustion and fuel, Types of Rockets based on Fuel used.Design Propulsion System of the Rocket.
12	Guidance Navigation And Control System - I	<b>Exploration, Observation, Creativity, Logic</b> What is GNC? Why is it important for the Rocket? Introduction to Gyroscope, Making Mission to Moon app in Thinkable using Gyro Sensor.
13	Guidance Navigation And Control System - II	<b>Exploration, Observation, Creativity, Logic</b> Understanding Roll, Pitch and Yaw movements, Docking Capsule to Space game, Why do we need Control System, Building GNC model in Roblox.

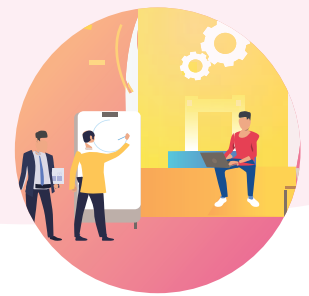


14	Payload And Launch Escape System	<b>Exploration, Observation, Creativity, Logic</b> What is Rocket's Payload ? Exploring Different Types of Payload, Understanding and designing Rocket Fairing, Why do we need Launch Escape System , Designing LES in Roblox.
15	Staging Process In Rocket - I	<b>Exploration, Observation</b> What are SRBs? Understanding different Stages of Rocket and Different Types of Staging.
16	Staging Process in Rocket - II	<b>Creativity, Logic</b> Setting up the environment for Rocket Lift-off and Understanding Reusable Launch System.
17	Stages Of Rocket Launch And Conquering Space - I	<b>Exploration, Observation</b> Understanding Rocket' s Phases, Riding To Station and Docking the Capsule with ISS, Space Job Opportunities Explored.
18	Stages Of Rocket Launch And Conquering Space - II	<b>Creativity, Logic</b> Scripting to make the Rocket Propulsion and Stage 1 Separation, Understanding Gravity Turn, Scripting to make the Gravity Turn.
19	Stages of Rocket Launch and Conquering Space - III	<b>Creativity, Logic, Higher Order Thinking</b> Stage 2 Separation, Scripting Satellite to reach Earth's Orbit and Revolve around Earth Setting up of Sound and Appropriate Text Messages, Making Astronaut to take a ride.
20	<b>Formative Assessment</b>	<b>Assessment Of Learning</b>
21	Space Objects - I	<b>Exploration, Observation</b> Knowing Artificial Satellite vs Natural Satellite, Understanding the Basic Parts of a satellite , Building a 3D Model.

# Learning Path For EARLY ACHIEVERS



22	Space Objects - II	<b>Exploration, Observation, Creativity, Logic</b> What is a Telescope? Need of a Telescopes at Space, Understanding the functionalities of JWST, Design of the 3D Model.
23	Satellite Image Analysis - I	<b>Exploration, Creativity, Logic, Higher Order Thinking</b> What is Remote Sensing? Its uses. analyze real Satellite Images.
24	Satellite Image Analysis - II	<b>Creativity, Logic</b> Remote sensing using Google Earth Engine Tool.
25	Reaching Astronaut's Home	<b>Exploration, Creativity, Logic, Higher Order Thinking</b> What is Docking? Capsule Docking process with ISS.
26	International Space Station - I	<b>Exploration, Creativity, Logic</b> Understanding various Modules of ISS, Activities Performed, Tools Used.
27	International Space Station - II	<b>Exploration, Creativity, Problem Solving</b> Basic Amenities required for Life at Space, Materials to do research, Study of Life Style of Astronauts, Knowing the Interiors of ISS, Risks involved.
28	<b>Formative Assessment</b>	<b>Assessment Of Learning</b>
29	Apollo's Mission to Moon	<b>Exploration, Creativity, Logic</b> How to move the Rocket to orbit other planet? Journey of Lunar Module to Moon.
30	Apollo Spacecraft Module Research - I	<b>Exploration, Creativity, Logic</b> Exploration of Apollo11 mission , Basic modules on Apollo Mission, Design of Apollo Modules.



31	Apollo Spacecraft Module Research - II	<b>Creativity, Logic</b> Exploration and Design of Lunar Module - Ascent Stage and Descent Stage.
32	Apollo Spacecraft Module Research - III	<b>Exploration, Creativity, Logic, Higher Order Thinking</b> Landing of Lunar Module on Moon's Surface.
33	Apollo's Mission Back To Earth	<b>Logic, Higher Order Thinking</b> Return Journey of Command Module to Earth.
34	Reaching The Red Planet - I	<b>Exploration, Creativity, Logic</b> Why MARS? Exploration of Future Missions, understanding Martian Terrain.
35	Reaching The Red Planet - II	<b>Exploration, Creativity, Logic</b> Why MARS? Exploration of Future Missions, understanding Martian Terrain.
36	Rovers On Mars - I	<b>Exploration, Observation, Creativity</b> Current Rovers on Mars , Design Research of Saturn V Spacecraft Modules.
37	Rovers On Mars - II	<b>Exploration, Observation, Spatial Visualisation, Creativity</b> Functions of Rovers, Understanding MARS Terrain, Design and Modelling of MARS Terrain.
38	Colonizing Mars - I	<b>Exploration, Observation, Creativity, Higher Order Thinking</b> Life Threatening Risks at Mars, Structural design of Mars Habitat.
39	Colonizing Mars - II	<b>Logic, Creativity, Problem Solving</b> Be the problem solvers to address fundamental issues of food, water, air and electricity on Mars and build the colonies.
40	Formative Assessment	<b>Assessment of Learning</b>