

# EDGE of SPACE

Monthly Digital Newsletter

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From the News

## Starship SN15 successful landing after High Altitude Test

BY PRIYANKASHARMA

SpaceX has revolutionized space exploration ever since the company replaced Space Shuttle, after its 2011 retirement, for commercial resupply flights to ISS.

Elon Musk, the founder of SpaceX has stated several times his central ambition 'The Colonization of Mars' and 'An Economical Space Travel.' The Starship program is working for the company's this major goal of enabling a multi-planetary society.

On May 5th, 2021, Wednesday, SpaceX performed Starship Prototype- SN15 (Starship serial number 15) first successful 'Hight Altitude Accent and Soft-Landing Test' from the launchpad in Boca Chica, Texas. This successful test is a pretty big deal as earlier we have seen four failures of prototypes: serial numbers 8, 9, 10, and 11



SN15 after a successful landing on May 5, 2021 - test flight in South Texas. (Source: SpaceX)

READ MORE AT: [Starship SN15 successful landing after High Altitude Test](#)

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Blog of the Month

## May 26th Lunar Eclipse: Everything You Need To Know

BY PRIYANKA SHARMA

Before the International Space Station, Skylab, and even before Sputnik, just one special satellite circled the Earth. It has been there even before the first cells divided. Every life form that has ever looked up at the sky from the Earth, must have seen this celestial body.



It is called “The Moon”- Earth’s constant companion and its only natural satellite. Being the largest and brightest object in our night sky, it is also the only outer space object where humans have had made their occasional landings.

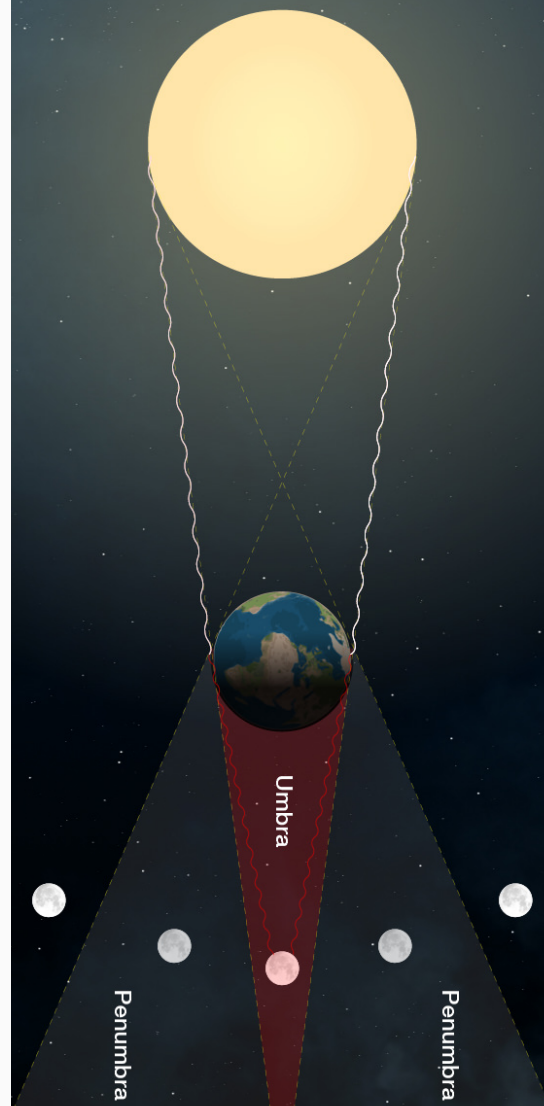
Different people on the Earth pronounce the Moon in their own language. It is called “The Luna” in Italian, Latin, and Spanish, “Lune” in French, “Mond” in German, “Selene” in Greek, “Chaand” in Hindi, or “Chandra” in Sanskrit.

The Roman, Greek, and Indian cultures have worshipped its various phases (as seen from Earth) as a Mythological Deity.

READ MORE AT: [May 26th Lunar Eclipse: Everything You Need To Know](#)

**A solar eclipse always occurs about two weeks before or after a lunar eclipse. Thus, after May 26th’s eclipse, we have an annular solar eclipse on June 10, 2021.**

(Image Credit: Universe Today)



# FEATURED BLOGS OF THE MONTH

SUN	MON	TUE	WED	THU	FRI	SAT
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2	3	4 <a href="#">Solar Flares: Colossal Electromagnetic Explosions</a>	5	6	7 <a href="#">Why SpaceX launched four astronauts to the ISS?</a>	8
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# THE NEWS BULLETIN

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## 17th May 2021: Kayla Barron joins NASA's SpaceX Crew-3 mission to the ISS

Kayla Barron, who has become a NASA astronaut in January 2020 with her two years of training, will join astronauts Raja Chari and Tom Marshburn in SpaceX's Crew-3 mission to the ISS on 23rd October 2021. The team will also have ESA astronaut Matthias Maurer as a mission specialist.



2

## Mars Ingenuity Helicopter's 6th flight test

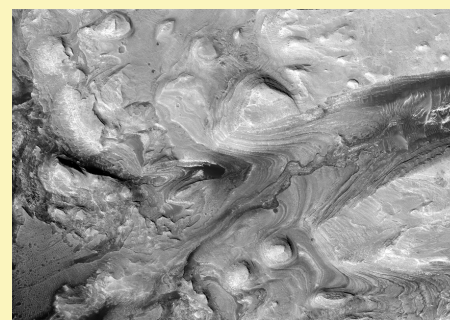
After the 5th flight test of NASA's Mars Perseverance Rover's Ingenuity Helicopter on 7th May 2021, NASA is planning to mark its 6th flight test in the coming weeks. For this time, the helicopter will ascend to 33ft and head southwest for approximately 492ft so that it can send colored images of the Martian areas.



3

## Organic Salts on Martian Surface

NASA's team has found organic salts such as calcium, iron, and magnesium oxalates & acetates may widespread on the Martian surface. These salts are chemical remnants of organic matter and may provide evidence for the existence of ancient life on the planet. The results are published in the journal of Geographical Research.



22nd May 2021: China's Zhurong rover drove down to the Martian surface

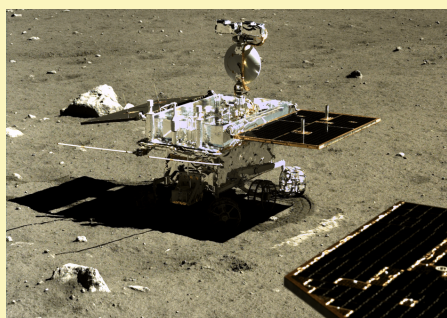
Zhurong, a solar-powered Chinese rover has touched the Martian surface from the lander at 10:40 a.m. Beijing time on 22nd May 2021, as per the reports by China's Space Administration. The rover will search for traces of life and is expected to spend 90 Mars days.



4

## 19th May 2021: China's Yutu-2 completed its 30th Lunar days on the far side of the Moon

China's rover Yutu-2, as a part of Change's-4 mission, has recently completed its 30 Lunar days (866 Earth days) on the far side of the moon since the day of its launch (3rd January 2019). In the duration, it has covered 2,326ft of the lunar surface.



5

## 10th May 2021: Faint plasma 'hum' discovered by Voyager 1 in the interstellar space

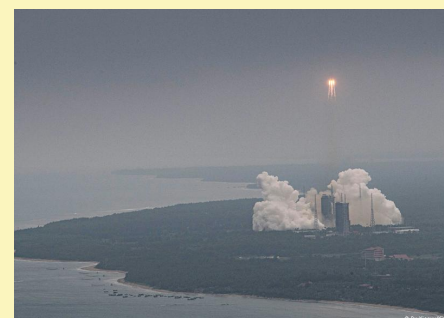
Voyager 1, which left the Earth on 5th September 1977 and helioscope in 2021, detected a faint and monotonous hum interstellar gas (plasma) of low-frequency bandwidth, as announced by a team of scientists at NASA on 10th May 2021.



6

## 9th May 2021: China's Rocket debris landed in the Indian Ocean

A large part of the remnants from the Chinese biggest rocket Long March-5B landed in the Indian Ocean (longitude: 72.47 degrees east & latitude: 2.65 degrees north ) at 7:45 a.m. IST as per the reports by state media.

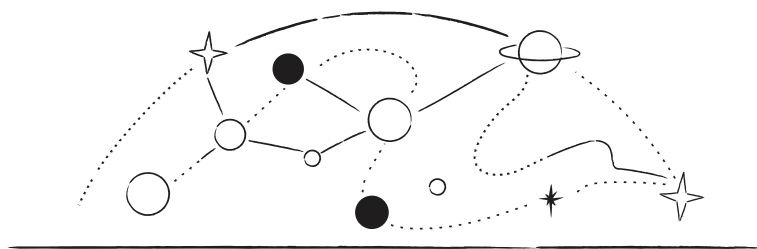




If you love space science and art and want to show everyone the artist in you, get a chance to be featured on the Edge of Space with your - COSMIC ART. Draw any Space Science-related sketches/pencil art/painting/doodle art and send us to [eos@sserd.org](mailto:eos@sserd.org) by 30th June 2021.

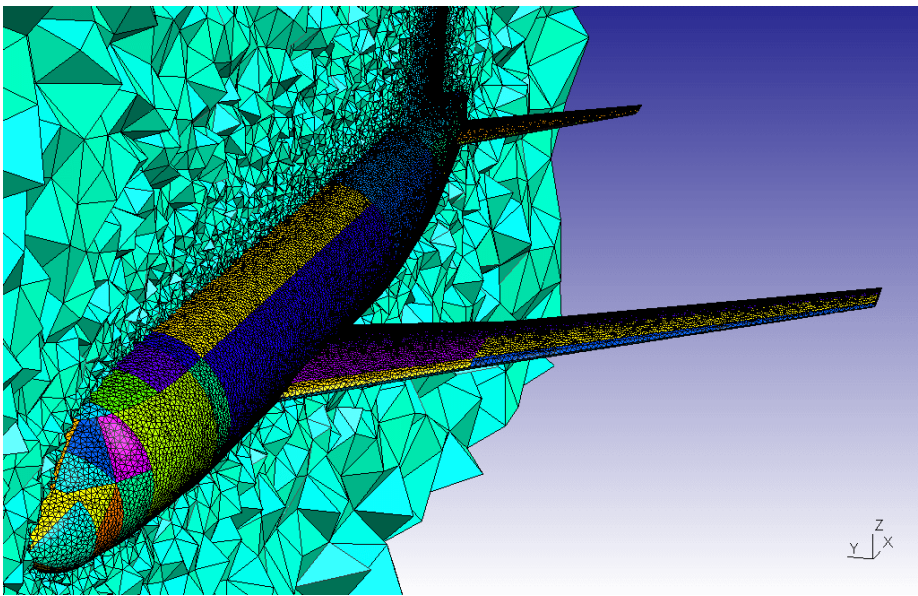
### INSTRUCTIONS

- You are free to create any space-related drawing/ painting/ doodle/ sketches. Make sure it's original art and must be solely made by you.
- Please mail us your art at [eos@sserd.org](mailto:eos@sserd.org) with a brief description of it.
- Also, please send us your social media profiles so that we can give credit to your work.
- The top 3 entries will be featured on our website and the top 10 on our social media handles and June's Newsletter.



LAST DATE FOR SUBMISSION: 30th June 2021

Mail us at [eos@sserd.org](mailto:eos@sserd.org) for queries



# INTRODUCTION TO ENGINEERING SIMULATIONS

A course by SSERD in association with SpaceShala

## Overview:

We often say that mathematics is the solution to all the physical problems around us. With this thought, SSERD brings you the course 'Introduction to Engineering Simulations' to make the students build the ability to use mathematics to predict the behavior of the physical nature of any objects. The program is specifically designed to solve the aerodynamical mechanical engineering problems and apply that classroom knowledge in a project, which will be further published in an esteemed journal.

## Objectives:

1. To make students learn to build the mathematical model of a physical problem using MATLAB.
2. To make students learn to design, mesh, and simulate heat transfer and aerodynamical models in Ansys.

## Core Syllabus:

The syllabus has three sections:

1. An introduction to Finite Element Analysis: You'll learn FEA basics, which includes identifying the FEA problem and its discretization and converting Partial Differential Equations to the algebraic form.
2. Engineering problem solving using Ansys Workbench: You'll get the overall understanding of solving problems of aerodynamics using Ansys software, which will help you to solve the engineering problems through designing, meshing, and simulating.
3. Project: We'll provide you with a project to apply your knowledge and training throughout the course and allow students to get exposure in the field of Aero-Mechanical projects. This project will be published in an esteemed journal.

## LEARNING OBJECTIVES

Basic ideas of  
Engineering Simulation.

Basics of CFD

Basics of Programming

Fluid flow simulation  
using Ansys Workbench

Modeling of a geometry  
using Design Modeler

The meshing of Different  
kinds of geometry  
Simulation of models in  
Ansys Fluent

Post Processing of Results

Project Management

How to prepare a  
professional report

How to approach an  
engineering problem  
using simulation like an  
expert

How to prepare, publish  
and present a research  
paper.

## OTHER DETAILS

Class Timings: 6 PM to 8  
PM (4hours/ week, 2  
hr/day)

Dates: Starting from June  
End

Visit:  
<https://www.sserd.org/engineeringtraining/>  
to know more

The poster features a dark blue starry background. At the top center is the 'SPACE TALK' logo in a blue circle. To its right is the IAU logo with the text 'meet the IAU astronomers!'. On the left, a circular portrait of Dr. Matthieu Renaud is shown. Below the portrait, the text reads: 'Space Talk on "Cosmic Rays, Supernovae, and their remnants" By, Dr. Matthieu Renaud Astrophysicist at CNRS/IN2P3 affiliated at the "Laboratoire Univers et Particules de Montpellier" (LUPM)'. At the bottom left is the 'Society for Space Education Research & Development' logo with the tagline 'EDUCATE - INSPIRE - INNOVATE'. At the bottom right are social media icons for Facebook, Instagram, Twitter, LinkedIn, and YouTube, all with the handle '/sserd'.

## SPACE TALK BY DR. MATTHIEU RENAUD

### On Cosmic Rays, Supernova, and their Remnants

Various questions such as, ‘What exactly is a supernova?’, ‘How are they formed?’, ‘Will Sun become supernova?’ are revolving in the minds of space enthusiasts.

The supernova remnants, left behind after the supernova, are also a ‘center of research’ for astrophysicists. The reason behind this is the fact that for a long time, and even now, scientists believe that these remnants are the core source of some high-energy particles – called Cosmic Rays.

Read the full blog at the Edge of Space ([LINK](#)) and listen to the Space Talk on SSERD's youtube platform ([LINK](#))

# INTERNSHIP AND PROJECT DIVISION - BATCH 11

The goal of this internship is to help students to work on space-related projects! You will receive the best of training and guidance from SSERD as well as other pioneers in the field all to your home and completely online. You will also earn an e-certificate after the completion of the internship.

## TOPICS:

1. Propulsion System
2. Astronomy and Astrophysics
3. Satellites
4. Space Settlement
5. Space Mission Design
6. Space Robotics
7. SSERD Operations

## BENEFITS:

1. Training
2. SSERD official membership
3. Career guidance
4. Access to professionals
5. Scholarships will be provided for those who can't afford

## TRAINING ON:

1. How to do the research
2. How to look for the correct information
3. How to make the best resume
4. Selection of universities
5. Project Specific Trainings

Application is open for any students pursuing undergraduate and postgraduate programs.

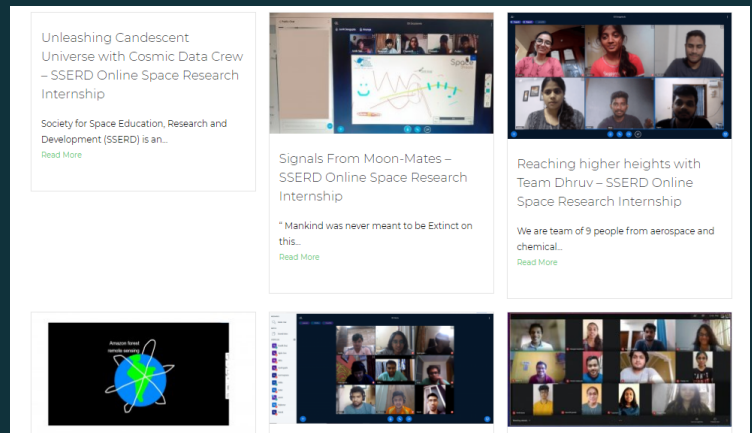
## Application Process:

1. Fill the application form
2. Wait for interview notification
3. Issue of topics
4. Commencement of Internship

Batch Duration: 4 weeks

Timings: 4-8 PM IST, Monday to Saturday

Last Date to apply: 2nd July 2021



Visit [SSERD Internships](#) to know more

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