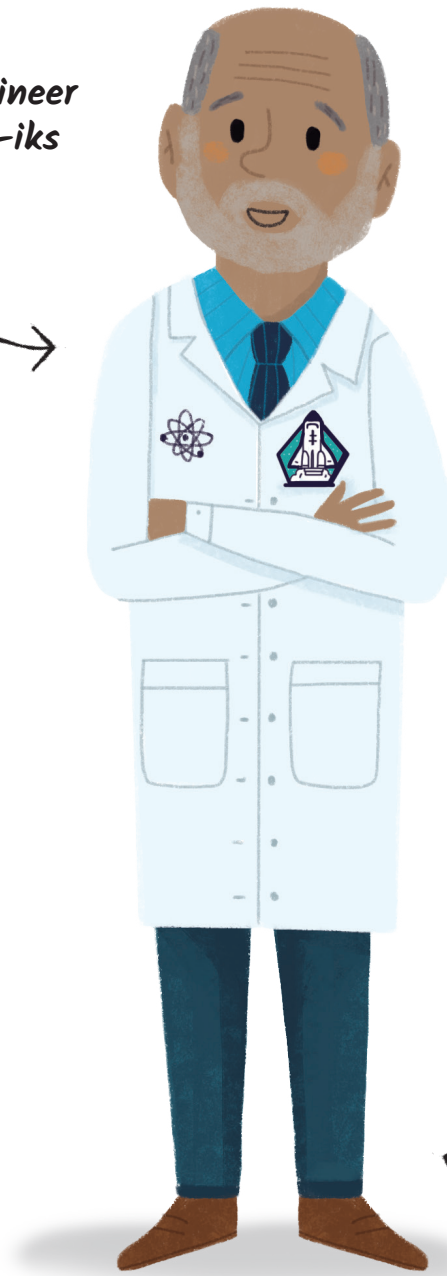


THE WORLD OF ASTRODYNAMICS ENGINEERS

Astrodynamics engineers study the movement of objects in space, including spacecraft, satellites, and space stations. These objects need to be carefully monitored to ensure they travel safely through space! Astrodynamics combines physics, mathematics, and engineering – it requires real teamwork!

Astrodynamics Engineer
(as-troh-dy-NAM-iks
en-JEE-neer)



*Astrodynamics engineers work with **advanced technology** to design systems that control spacecraft. They make sure everything is running smoothly, from guiding satellites to planning missions. Engineers also use **computer simulations** to ensure safe space operations and solve any challenges before launching.*

WHAT DO ASTRODYNAMICS ENGINEERS DO?

Astrodynamics engineers play a crucial role in space exploration by designing spacecraft systems and managing missions.

LAB WORK

Astrodynamics engineers focus on designing spacecraft, planning their missions, and calculating the best routes for their journeys. They use special software for spacecraft navigation, tracking systems to monitor orbits, and mission simulators to test and solve problems before launching a spacecraft into space.



FIELDWORK

Although most of their work happens on Earth, astrodynamics engineers are involved in the building and operation of space stations and missions.

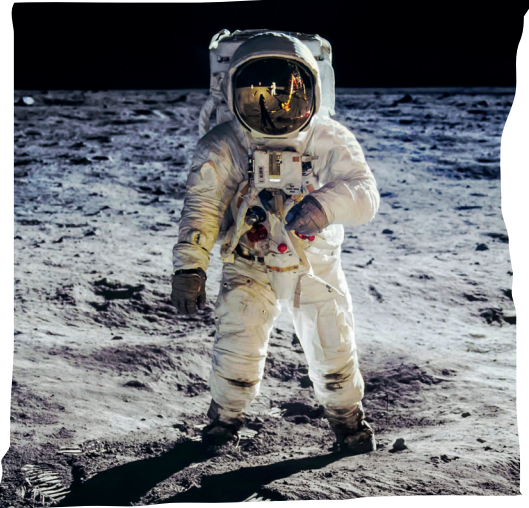
On launch day, they are at mission control and launch sites, making sure everything goes according to plan for a successful lift-off!

WHO DO ASTRODYNAMIC ENGINEERS WORK FOR?

Many astrodynamics engineers work for government-run space agencies, which exist all over the world. These include NASA, the European Space Agency, and the space agencies of China, Japan, Canada, India, and Russia. Each agency has its own programmes, although astrodynamics engineers will sometimes collaborate on projects. Alongside this, many private companies are becoming increasingly interested in space travel, such as Virgin Galactic, Blue Origin, and SpaceX.

FAMOUS MOMENTS IN SPACE

Scientists have made many ground-breaking achievements that contribute to the future of space travel.

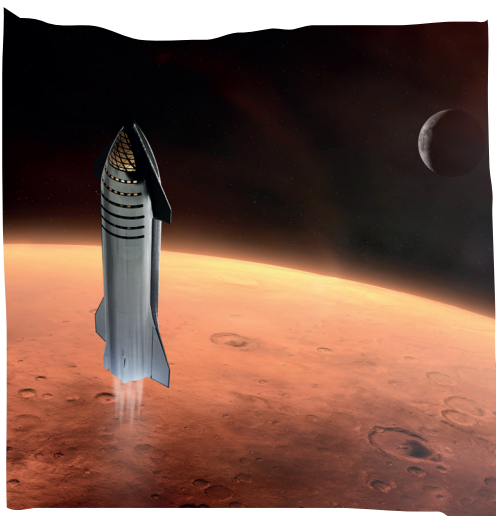


APOLLO 11 MOON LANDING, 1969

Astrodynamics engineers played a critical role in the Apollo 11 mission, ensuring the spacecraft's precise journey to the Moon and back. They were responsible for the challenging task of guiding the spacecraft from its orbit down to the Moon's surface – a key achievement in space history.

MARS ROVER LANDINGS, 2012

Landing on Mars is a huge challenge! The landing of the Curiosity rover is famous for its 'Seven Minutes of Terror,' during which engineers carefully timed a series of exercises, including retro-rockets, a parachute, and a sky crane, to slow down the rover's descent so that it could land safely on Mars.



SPACEX'S NEXT GENERATION SPACECRAFT

Companies like SpaceX are hiring astrodynamics engineers to develop spacecraft for travel between different planets. The engineers are working on Starship, which is designed to take humans to the Moon, Mars, and beyond, pushing the boundaries of space travel!

Astrodynamics engineers are making discoveries all the time; who knows what they might discover next!

FAMOUS ASTRODYNAMICS ENGINEERS

Astrodynamics engineers have made incredible contributions to science. Here are just a few of the most famous people working in the field of space science.



KATHERINE JOHNSON

Katherine Johnson was a brilliant mathematician who helped NASA send astronauts into space, including John Glenn's historic orbit. Her story was shared in the movie *Hidden Figures*, and she received the Presidential Medal of Freedom.

WANG HAOZE

Wang Haoze made history as the first female engineer on an orbiting space mission. She joined the Shenzhou 19 mission and helped install a debris shield around the Tiangong space station to keep it safe from space debris.



MAE JEMISON

Dr. Mae Jemison made history as the first African American woman in space. On her 1992 mission aboard Endeavour, she studied how microgravity affects bones, helping astronauts on long missions stay healthy.



Astrodynamics engineers continue to make exciting advances in space exploration, making sure that spacecraft safely navigate through the vastness of space and help make interplanetary travel possible!