

International Space Station [UPSC Science & Technology]

The International Space Station (ISS) is a space station in low earth orbit and is a significant achievement for science and technology. In this article, you can learn all about the International Space Station, how it functions, what all countries are behind it and other details. This is a topic under the [UPSC](#) science and technology segment.

What is the International Space Station (ISS)?



Image

source: <https://www.space.com/>

The ISS is a manmade space station or artificial satellite that is habitable for humans in space. It is in the low-earth orbit and there are astronauts living onboard the space station conducting experiments on earth science, biology, biotechnology, astronomy, microgravity, meteorology, physics, etc.

- The astronauts generally don't live on the station for more than six months at a time.
- The first piece of equipment of the ISS was launched in 1998 and other parts and modules were added and assembled in space at different times.
- The first crew arrived on the ISS in 2000 and since then it has always been manned by astronauts.
- The ISS was developed and built by five space agencies namely, NASA (USA), Roscosmos (Russia), European Space Agency (ESA-Europe), JAXA (Japan) and the Canadian Space Agency (CSA-Canada).
- The ISS is usually at an altitude between about 200 km and 400 km and weighs more than 400,000 kg. It is 73 m long and 109 m wide.
- The ISS orbits the earth at about 5 miles per second and makes 15.5 orbits per day. It takes roughly 93 minutes for it to make one revolution around the earth.
- According to NASA, more than 240 people from 19 nations have visited the space station. More than 3000 educational and research investigations have been carried out in various fields.

- Astronauts conduct spacewalks (that is, stepping out of the ISS onto space) and conduct maintenance and repair works on the station. There have been over 200 spacewalks until now.

ISS Program Evolution

- The ISS is not the first actual space station to be conceived.
- It evolved from NASA's Space Station Freedom, which was conceived in 1984. However, it was never constructed as per the original design.
- Russian space station Mir-2 had started in 1976 and some of the modules built for it have been incorporated into the ISS.
- The ISS happens to be the ninth crewed space station, the other earlier ones being Salyut, Almaz, and Mir stations of Russia and Skylab of the US.

International Space Station Latest News

Russia announced that it will exit the ISS in 2025. Russia was a vital component of the ISS with countries depending on its modular space station construction technology to build the station in the early years. Also, it was Russia's Soyuz passenger vehicle that transported people to the ISS ever since 2011 when the US retired its space shuttle program.

The ISS has not started relying on private firm SpaceX for this purpose. This has deprived Russia's Roscosmos of its funding from NASA.

Russia is also planning to build its own space station, expected to be launched into orbit by 2030.

China is also building its own space station named Tiangong (meaning heavenly space). Its core module, the Tianhe was launched in April 2021.

Indian Space Station

India plans to have its own space station and its modalities will be submitted to the government by the Indian Space Research Organisation (ISRO) after the [Gaganyaan Mission](#). The proposed space station is envisaged to weigh 20 tonnes and serve as a facility where astronauts can stay for 15-20 days, and it would be placed in an orbit 400 km above the earth.