



India to Set Up its Own Space Station

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India is planning to launch its own **space station by 2030**, joining the league of US, Russia, and China to an elite space club.

- A space station is a **habitable spacecraft** capable of supporting human crewmembers and designed to remain in space.
- As of now, the International Space Station (ISS) is the only fully functioning space station and largest human-made body in low Earth orbit.

Indian Space Station

- The Indian space station will be much **smaller (mass of 20 tonnes)** than the International Space Station and will be used for carrying out **microgravity experiments** (not for space tourism).
- Preliminary plan for the space station is to accommodate astronauts for up to **20 days in space**, and the project will be an extension of the **Gaganyaan mission**.
- It will orbit Earth at an altitude of around **400km**.
- **ISRO** (Indian Space Research Organisation) is working on space docking experiment (Spadex), a technology that is crucial for making the space station functional.
space docking is a technology that allows transferring humans from one spacecraft to another.

Significance

- Space station is essential for collecting meaningful **scientific data**, especially for biological experiments.
- Provide platforms for greater **number and length** of scientific studies than available on other space vehicles. (as Gaganyaan will take humans and experiments in microgravity for few days only).
- Each crew member stays aboard the station for **weeks or months**, but rarely more than a year.

- Space stations are used to study the effects of **long-term space flight** on the human body.