



# Axiom-4 Mission

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## Why in News?

Recently, the [Indian Space Research Organisation \(ISRO\)](#) announced that two Indian astronauts selected for the **Axiom-4 mission** (scheduled to launch in 2024) to the [International Space Station \(ISS\)](#) have completed the initial phase of training.

- These two Indian astronauts are **Prime-Group Captain Shubhanshu Shukla and Backup-Group Captain Prasanth Balakrishnan Nair**.

## What is the Axiom-4 Mission?

### ▪ About:

- [Axiom Mission 4 \(Ax-4\)](#) is a **private spaceflight to the ISS** operated by **Axiom Space** (US-based space-infrastructure development company), using the **SpaceX Crew Dragon spacecraft**.
- The [SpaceX](#) Crew Dragon is a reusable spacecraft that carries astronauts to and from the ISS.
- It is the **fourth flight in collaboration with** the [National Aeronautics and Space Administration \(NASA\)](#), following Axiom Missions 1, 2, and 3.

### ▪ Mission Objectives:

- **Commercial Space Initiatives:** Axiom-4 focuses on enabling commercial activities like **space tourism** in **Low Earth Orbit (LEO)**.
  - It aims to **demonstrate the feasibility of commercial space stations** as platforms for **business and research**.
- **International Collaboration:** The mission features a **diverse multinational crew**, emphasising **global cooperation in space exploration**.
  - It aims to **strengthen international partnerships** and promote joint efforts in advancing space science.
- **Research and Development:** The mission supports **scientific experiments and technological advancements in microgravity**.
  - Research areas include **materials science, biology, and Earth observation**, offering potential breakthroughs.

### ▪ Key Features:

- **Spacecraft and Crew:** The mission will deploy a **SpaceX Dragon spacecraft** launched by a [Falcon 9 rocket](#), carrying professional **astronauts, researchers, and private individuals**.
- **Mission Duration and Activities:** With an **expected duration of 14 days**, the crew will **conduct experiments, technology demonstrations**, and educational outreach aboard the ISS.
- **Commercial Space Station Development:** Axiom-4 is part of Axiom Space's vision to **establish the first commercial space station**, transitioning from ISS operations to an independent orbital platform.

### ▪ Significance for India:

- The Ax-4 marks a pivotal **collaboration between the [ISRO](#) and [NASA](#)**, highlighting

India's **growing presence in space exploration.**

- This mission will facilitate Indian astronauts' participation in activities aboard the ISS, enhancing India's capabilities in [human spaceflight](#) and international cooperation in space science.



## About Axiom-4 Mission

- **NASA and Axiom Space**, an American privately funded space infrastructure developer signed an order for the **fourth private astronaut mission** to the ISS, aiming to launch in August 2024 from **Kennedy Space Center in Florida**.
- The mission aims to dock with the ISS for a **fourteen-day duration**.
- **Indian astronauts will receive training from NASA**, international partners, and SpaceX, focusing on spacecraft systems and emergency preparedness, as part of India-US space cooperation goals.



### Note:

- During the Prime Minister's 2023 visit to the US, a joint statement confirmed that **NASA** would provide advanced astronaut training to India under the [Artemis Accords](#).
- India's [Gaganyaan human spaceflight mission](#) is planned for post-2025, following two successful unmanned missions.

### What is the ISS?

- **About:** The [International Space Station \(ISS\)](#) is a **large, permanently crewed laboratory orbiting Earth** at an **altitude of approximately 400 kilometres**.
- **Countries Involved:** The ISS is a collaborative effort involving 15 countries and 5 space agencies: [NASA](#), [Roscosmos](#), [European Space Agency](#), [JAXA](#), and [Canadian Space Agency](#).
- **Operation at ISS:** An international crew of seven astronauts and cosmonauts live and work

aboard the station, travelling at a speed of 7.66 km/sec, completing an orbit around Earth every 90 minutes. The ISS orbits Earth 16 times within 24 hours.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims:

**Q. What is the purpose of the US Space Agency's Themis Mission, which was recently in the news? (2008)**

- (a) To study the possibility of life on Mars
- (b) To study the satellites of Saturn
- (c) To study the colourful display of high-latitude skies
- (d) To build a space laboratory to study the stellar explosions

**Ans: (c)**

**Q. Consider the following statements: (2016)**

The Mangalyaan launched by ISRO

1. is also called the Mars Orbiter Mission
2. made India the second country to have a spacecraft orbit the Mars after USA
3. made India the only country to be successful in making its spacecraft orbit the Mars in its very first attempt

**Which of the statements given above is/are correct?**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Ans: (c)**