



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.

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)