



KAMARAJ IAS ACADEMY
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ISS trip draws closer, Shubanshu Shukla enters quarantine

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Context

- Group Captain Shubhanshu Shukla and other crew members of the Axiom-4 (Ax-4) mission to the International Space Station (ISS) are entering quarantine ahead of the scheduled launch on June 8 from the National Aeronautics and Space Administration's (NASA) Kennedy Space Center in Florida.
- The Ax-4 crew will spend up to 14 days at the orbiting laboratory.
- **Group Captain Shukla**, who is **also** one of the four astronaut-designates selected for the **Indian Space Research Organisation's (ISRO) Gaganyaan mission**, **will be the first Indian astronaut to reach the ISS, and the first Indian in space after 40 years (after Rakesh Sharma in 1984).**

Axiom - 4 mission

- Axiom Mission 4 (Ax-4) is a **private spaceflight to the International Space Station (ISS)**, operated by **Axiom Space, a US-based space infrastructure company.**
- It is the fourth mission in collaboration with NASA, following Axiom Missions 1, 2, and 3.
- **Commercial Space Initiatives:** Ax-4 aims to advance commercial activities in Low Earth Orbit (LEO), including **space tourism and the development of commercial space stations.**
- **International Collaboration:** The mission emphasizes global cooperation in space exploration, featuring a multinational crew.
- **Research and Development:** Ax-4 will support scientific experiments in **microgravity, focusing on areas like materials science, biology, and Earth observation.**
- The mission will use a **SpaceX Dragon spacecraft**, launched by a **Falcon 9 rocket.**
- The crew includes Commander Peggy Whitson (former NASA astronaut), Pilot Shubhanshu Shukla (ISRO, India), and mission specialists S?awosz Uznanski Wisniewski (Poland, ESA) and Tibor Kap(Hungary)
- **Mission Duration:** The **14-day mission** will focus on scientific experiments, technology demonstrations, and educational outreach aboard the ISS.
- **Commercial Space Station Development:** Ax-4 is part of Axiom Space's vision to **establish the first commercial space station**, transitioning from ISS-based operations to an independent orbital platform.

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International Space Station (ISS)

- It is the **largest man-made structure in space, and was launched in 1998.**
- It functions as a **habitat for astronauts and has been continuously occupied since 2000.**
- Participating Agencies: The ISS is a joint effort of the space agencies of the **United States (NASA), Russia (Roscosmos), Europe (ESA), Japan (JAXA), and Canada (CSA).**
- Orbit: The ISS orbits approximately **400 kilometres above Earth (Low Earth Orbit)**
- Speed: It travels around Earth at about 28,000 kilometres per hour, **completing an orbit every 90 minutes.**
- Objectives: The ISS aims to advance our understanding of **space and microgravity, support new scientific research, and exemplify international collaboration.**