



KAMARAJ IAS ACADEMY
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Shubanshu Shukla's Axiom - 4 mission to ISS put off again

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Context

- NASA has put off Sunday's launch of the Axiom-4 mission carrying **Indian astronaut Group Captain Shubhanshu Shukla** and three others to the International Space Station
- The Axiom-4 mission was targeting a June 22 launch after being put off multiple times due to a leak in the boosters of **SpaceX's Falcon-9 rocket**, **inclement weather** in the ascent trajectory etc.

Axiom Mission 4 (Ax-4)

- 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.

Aim:

- 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.

Crew & Spacecraft:

- 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 Kapu (Hungary).
- If successful, **Shubhanshu Shukla** will be the **second Indian citizen to go into space after Rakesh Sharma**.
- The **14-day mission** will focus on scientific experiments, technology demonstrations, and educational outreach aboard the ISS.

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- 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.

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**.
- 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.