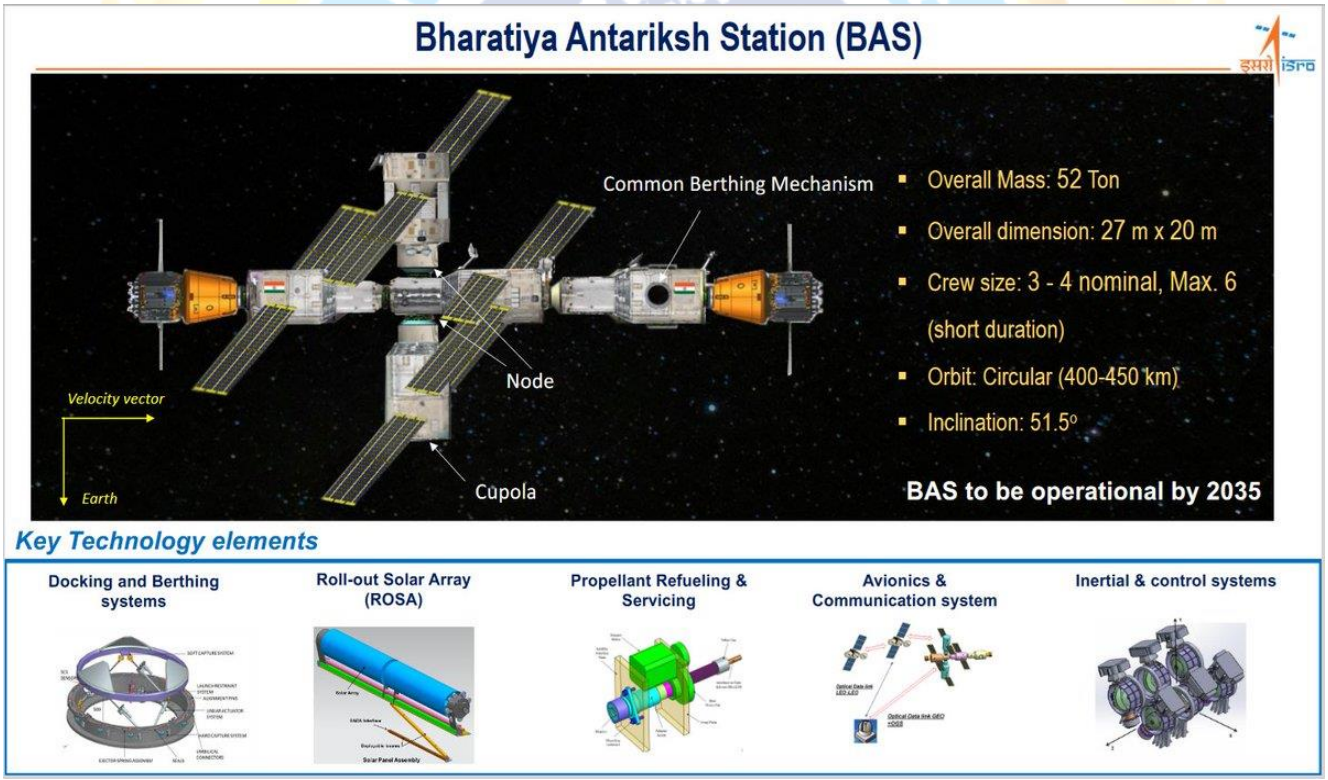
BHARATIYA ANTARIKSH STATION - SPACE

News: The Union Cabinet has approved the development of the first module of the Bharatiya Antariksh Station (BAS-1) by expanding the scope of the Gaganyaan programme. This decision marks a crucial step towards establishing India's own space station by 2035 and paves the way for a crewed lunar mission by 2040.

What's in the news?

About the revised Gaganyaan programme

- The Gaganyaan Programme was approved in 2018. It envisages undertaking the human spaceflight to **Low Earth Orbit (LEO)** and to lay the foundation of technologies needed for an Indian human space exploration programme in the long run.
- The **revised Gaganyaan programme** now encompasses eight missions to be completed by December 2028, including the launch of the **BAS-1 unit.**
    - This expansion involves **additional uncrewed missions** and hardware requirements to support the ongoing human spaceflight initiatives.



- The total funding for the Gaganyaan programme has been increased to Rs 20,193 crore, with an additional allocation of Rs 11,170 crore to accommodate the expanded scope.
- The programme aims to develop and demonstrate critical technologies for long-duration human space missions, with four missions under the ongoing Gaganyaan programme scheduled by 2026, followed by the development of the BAS-1 module and four additional missions for technology demonstration and validation by 2028.

Significance of Bharatiya Antariksh Station

- The Bharatiya Antariksh Station is expected to boost microgravity-based scientific research and technology development, fostering innovations in key areas. This initiative is also anticipated to generate increased employment opportunities in high-technology sectors related to space and allied industries. Beyond its technological and scientific objectives, the expanded programme aims to inspire India's youth to pursue careers in science and technology, offering unique opportunities in microgravity research and development.
- The resulting innovations and technological spin-offs are expected to benefit society at large, positioning India as a leading nation in space exploration and research.

- The Cabinet also approved theChandrayaan-4 mission to Moon and the Venus Orbiter Moon to Earth's mysterious twin.

CHANDRAYAAN-4

- Chandrayaan-4 is India's upcoming lunar mission, aimed at developing and demonstrating technologies necessary for a successful return to Earth after landing on the Moon. It will also focus on collecting lunar samples for analysis back on Earth.
- **Key Features of Chandrayaan-4**
  - **Development and Launch:** The mission will be developed and launched by the Indian Space Research Organisation (ISRO) and is expected to be completed within 36 months.
  - **Budget**: The total cost of the Chandrayaan-4 mission is ?2,104.06 crore, which encompasses spacecraft development, two LVM3 launches, deep space network support, and necessary special tests.
  - **Technological Self-Sufficiency**: This mission aims to enhance India’s self-sufficiency in technologies related to manned missions and lunar sample analysis, with significant contributions from Indian industries and academic institutions.
- **Venus Orbiter Mission (VOM):** The Venus Orbiter Mission (VOM) will focus on scientific exploration to deepen our understanding of Venus’s atmosphere and geology, generating valuable scientific data through its analysis of the planet's thick atmosphere.
- **Key Features of VOM**
  - **Scientific Objectives**: The mission aims to orbit Venus with a scientific spacecraft that will study its surface, subsurface, atmospheric processes, and the influence of the Sun on its atmosphere.
  - **Importance of Venus**: Understanding Venus is crucial, as it is believed to have once had conditions suitable for habitability, similar to Earth.

- **Launch Schedule:** The Venus Orbiter Mission is scheduled for launch in March 2028, marking another significant step in India's space exploration endeavors.

Source: https://timesofindia.indiatimes.com/india/cabinet-approves-chandrayaan-4-mission-first-module-of-bharatiya-antariksh-station-venus-mission-next-gen-launcher/articleshow/113461522.cms