



Nauka Module of Russia

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Why in News

Recently, the **Russian Space Agency Roscosmos**, launched its biggest space laboratory named Nauka to the International Space Station (ISS).

Earlier, **four astronauts were launched to the ISS from Florida** as part of a **collaboration between NASA and SpaceX** under the Commercial Crew Program. The mission is called Crew-2.

International Space Station

- ISS is a habitable artificial satellite - the **single largest man-made structure in low earth orbit**.
- It is a collaborative effort between **five participating space agencies: NASA** (National Aeronautics and Space Administration), **Roscosmos (Russia)**, **JAXA (Japan)**, **ESA (Europe)** and **CSA (Canada)**.
- A space station is **essentially a large spacecraft that remains in low-earth orbit for extended periods of time**.
- It is like a large laboratory in space, and allows astronauts to come aboard and stay for weeks or months to carry out experiments in microgravity.

Other Space Stations

- **China** has launched an unmanned module "Tianhe" of its permanent space station that it plans to complete by the end of 2022.
- **India** is also planning to launch its own space station by 2030, joining the league of US, Russia, and China to an elite space club.

Key Points

- **About Nauka Module:**

- Nauka **means Science** in Russian. This is **Russia's most ambitious research facility in space** and is fitted with an oxygen generator, robotic cargo crane, a toilet and a bed for Russian astronauts.
- This was **sent into orbit using a Proton rocket** (family of rockets in Russia - the most powerful in Russia's space inventory) and will **take eight days to reach the ISS.**

During this period, engineers and flight controllers will test Nauka in space, and prepare for its arrival on the space station.

- It will **replace Pirs**, and **will be attached to the critical Zvezda module**, which provides all of the space station's life support systems and serves as the structural and functional centre of the Russian Orbital Segment (ROS).

Pirs has been part of the space station since September 2001, functioning as a docking port for Russian visiting spacecraft and an airlock for Russian spacewalks.

- **Significance:**

- It will **increase the habitable volume of the ISS to 70 cubic Metres.** Cosmonauts will use the extra space to conduct experiments and to store cargo.
- Nauka will serve as a **new science facility, docking port, and spacewalk airlock for future operations.**
- For more than 20 years, people **have been carrying out research under microgravity conditions** which is not possible on earth, this module will help augment the ongoing research.

Research is being carried out in various disciplines such as, biology, human physiology, and physical, material and space science.

Source: IE