



Dr. Jitendra Singh Informs Rajya Sabha of Key Milestones in Gaganyaan and India's Human Space Exploration Roadmap

**India's First Human Space Mission Gaganyaan Moves Closer to Reality as Critical Human-Rating Milestones are Achieved:
Dr. Jitendra Singh**

“First uncrewed Gaganyaan mission carrying Vyommitra targeted in Q4 2026; Bharatiya Antriksh Station on track for 2035”

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Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences, Prime Minister's Office, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh today informed the Rajya Sabha that India's first human spaceflight mission, Gaganyaan, has achieved major milestones in the development and validation of critical human-rating systems, marking steady progress towards the country's maiden indigenous human spaceflight mission.

Speaking in the Rajya Sabha, Dr. Jitendra Singh said that the Human Rated Launch Vehicle (HLVM3) has completed the development and ground testing of all propulsion stages and structures. He informed that the propulsion systems of the Crew Module and Service Module have been developed, tested and qualified, while the Engineering Model of the Environmental Control and Life Support System (ECLSS), Thermal Protection System, Deceleration System, Crew Module Up-righting System and end-to-end avionics have also been successfully developed and tested.

The Minister said significant progress has also been achieved in ensuring crew safety. All five types of motors for the Crew Escape System (CES) have been developed and successfully static tested, while all associated structures have been realised and qualified. He further informed that key mission infrastructure, including the Orbital Module Preparation Facility, Gaganyaan Control Centre, Crew Training Facility and modifications to the Second Launch Pad, has been established to support upcoming mission activities.

Dr. Jitendra Singh informed that the TV-D1 Test Vehicle Mission, undertaken for in-flight validation of the Crew Escape System, has been successfully completed. In addition, Integrated Air Drop Test-01 and Integrated Air Drop Test-02 using a simulated Crew Module have successfully validated the deceleration system. Activities towards the next Test Vehicle Mission (TV-D2) are currently in progress. He added that the ground communication network has been finalised, IDRSS-1 feeder stations and terrestrial links have been established, recovery assets have been identified and the crew recovery plan has been worked out, while various ground qualification tests of newly developed systems continue in parallel.

Outlining the mission roadmap, the Minister said the first uncrewed experimental Gaganyaan mission carrying the Vyommitra half-humanoid is targeted during the fourth quarter of 2026 to validate technologies being developed for the first time under the programme. This will be followed by two additional uncrewed missions in the configuration of the first crewed flight, targeted by 2027, before India's maiden human orbital mission.

Sharing the Government's long-term vision for human space exploration, Dr. Jitendra Singh said Bharatiya Antariksh Station (BAS) is planned to be operationalised by 2035. He informed that ISRO has worked out the overall configuration of the space station comprising five modules, while the Government has approved the development and launch of the first module, BAS-01. Overall system engineering and technology development activities for the module are progressing across ISRO Centres and Units.

The Minister further informed that the Union Cabinet approved a budgetary allocation of ₹20,193 crore in September 2024 for the execution of eight missions under India's Human Spaceflight Programme. He also highlighted ISRO's collaborations with leading international space agencies, including the European Space Agency (ESA) for network operations support, the Australian Space Agency (ASA) for crew and crew module recovery, France's CNES for specialised training of flight surgeons and ground support teams, and Russia's Roscosmos for astronaut training and procurement of critical human spaceflight systems.

Dr. Jitendra Singh said the progress achieved under the Gaganyaan Mission, together with the roadmap for the Bharatiya Antariksh Station, reflects the Government's sustained commitment to strengthening India's indigenous human spaceflight capabilities and building the technological foundations for the country's future space exploration programme.





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