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समाचार पत्रों से चयित अंश
Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

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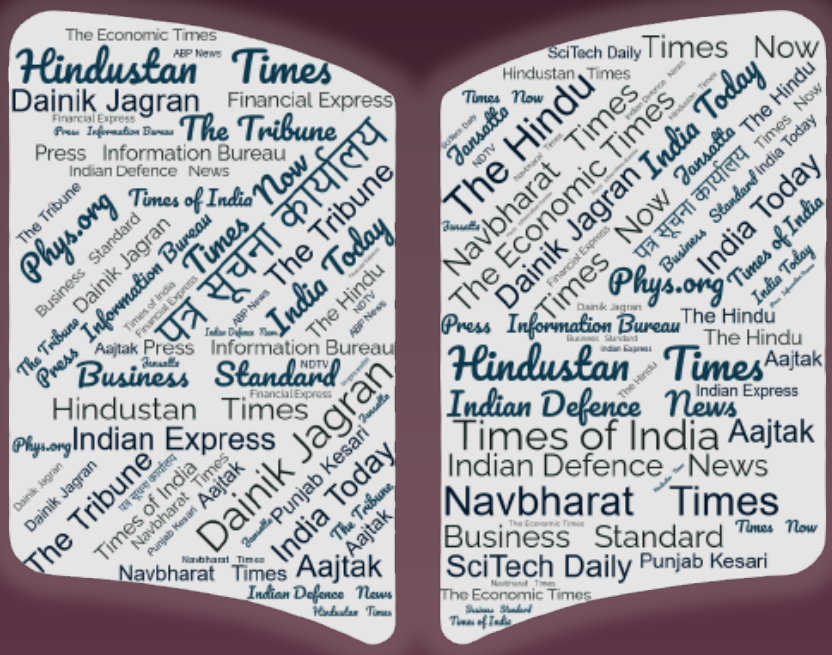

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DRDO News

DRDO Technology News

पत्रिका

गुरुवार, 27 अक्टूबर 2022

DRDO की जोधपुर लैब ने तैयार किया ऐसा यंत्र जो रूस और यूक्रेन हमले में आएगा काम

रूस और यूक्रेन बीच परमाणु युद्ध शुरू होने की आशंका बढ़ गई है। इसी बीच भारत की रक्षा अनुसंधान एवं विकास संगठन यानी DRDO जोधपुर लैब ने एक ऐसा यंत्र तैयार किया है जो कि किसी भी हमले के वक्त साफ और सुरक्षित पानी अपने सैनिकों को उपलब्ध करा सकता है। फिर चाहे वह रासायनिक हमला हो या फिर जैविक। रेडियोलॉजिकल हो या फिर परमाणु हमला। डीआरडीओ का यह यंत्र एक घंटे में 6000 लीटर तक साफ पानी जवानों को उपलब्ध करा सकता है।

युद्ध के समय पानी हो जाता है जहरीला

युद्ध के समय अगर रासायनिक, जैविक, रेडियोलॉजिकल या फिर परमाणु हमला होता है तो वह सबसे पहले पानी को जहरीला बना देता है। पानी जहरीला हुआ कि 24 से 48 घंटे के अंदर कोई भी सेना घुटनों पर आ जाएगी। ऐसे में डीआरडीओ की डिफेंस लैब जोधपुर ने CBRN यानी केमिकल, बायोलॉजिकल, रेडियोलॉजिकल, न्यूक्लियर हमले से सुरक्षा देने के लिए विशेष पानी साफ करने का संयंत्र बनाया है।

लद्दाख में है तैनात

भारतीय सेना के लिए डीआरडीओ ने 10 प्रोटोटाइप सिस्टम बनाकर एक सिस्टम लददाख के तंगत्से में तैनात किया गया था। यह सिस्टम जमीनी या फिर रेगिस्तानी इलाकों में ही बेहतर काम कर सकता था। ऐसे में अब इसका अपग्रेड वर्जन आया है। वह माइनस 20 से नीचे भी काम करेगा। इस संयंत्र को एलएसी के बहुत करीब भी तैनात किया जा सकता है।

एक घंटे में 6000 लीटर पानी साफ

सैनिकों को शुद्ध पेयजल उपलब्ध कराने में यह संयंत्र बहुत सक्षम है। अगर पानी में किसी तरह की सीओआरएन अशुद्धि है तो यह 1 घंटे में 2500 लीटर साफ पानी और नहीं है तो यह 6000 लीटर पानी साफ कर सकता है। भारतीय सेना ने इस संयंत्र का परीक्षण पैंगोंग झील के पास भी किया है।

सेना और वायुसेना ने की मांग

इस संयंत्र के लिए भारतीय सेना और भारतीय वायु सेना ने मांग की थी। दरअसल युद्ध के समय दुश्मन पानी में जहर मिलाने की साजिश करता है। ऐसे में इससे निपटने के लिए ऐसे संयंत्र की जरूरत थी। वायुसेना और सेना ने कुल 54 संयंत्र का आर्डर दिया है। भारतीय सेना को ऐसे 244 संयंत्र की जरूरत है।

https://www.patrika.com/jaipur-news/drdo-s-jodhpur-lab-prepared-such-device-that-will-use-in-russia-ukraine-7838114/

Defence News

Defence Strategic : National/International

NewsOnAIR

Thu, 27 Oct 2022

Defence Minister Rajnath Singh Addresses Shaurya Diwas Celebrations

Remembering the valour and grit of Infantry soldiers, the Indian Army is celebrating 76th Infantry Day today. The Indian Army organization also organized Shaurya Diwas programme in Budgam, Srinagar. Defence Minister Rajnath Singh attended the Shaurya Diwas programme and addressed the gathering at the event. The Dence Minister extended his warm greetings to all the brave soldiers of the Indian Army and Indian Airforce on the occasion of 76th Infantry Day and Shaurya Diwas. During his address at the Shaurya Diwas celebrations, Defence Minister Rajnath Singh talked about the development of Kashmir and Ladakh and called it just 'the beginning'.

"Our journey will be completed only when the refugees of 1947 will get justice when the land of their ancestors can be returned to them with respect," the Defence Minister said in his address at Budgam, Srinagar. The minister stated that he is convinced of the strength of the people and the armed forces and the day is not far when all the 'mandates' will also be successfully fulfilled.

The Defence minister expressed happiness over the changing situation in Kashmir. He noted that there has been unity among the people and they have supported each other. According to him, Shaurya Diwas is one more opportunity to remember the valour and contribution of the brave soldiers to the nation.

76th Infantry Day

Infantry Day is celebrated everyone year on October 27 as it is the day when the Indian Army's infantry troops landed in Kashmir for the first time in 1947. This day is commemorated to honour the brave soldiers of the infantry who fought and laid down their lives during the India-Pakistan war in 1947. The operation was started on October 27, 1947, to protect the people of Kashmir from the Pakistani invaders after Maharaja Hari Singh of Kashmir had signed the Instrument of Accession of Kashmir to India.

The Indian Airforce carried out the task of flying the troops of 1 Sikh into Srinagar on this day. A 'Wreath Laying' ceremony was organised at the National War Memorial today to honour the heroes of the Infantry. Apart from the wreath-laying ceremony, the CDS also flagged in Bike Rallies from the four cardinal directions. The bikers had started their journey from Udhampur (J&K), Ahmedabad (Gujarat), Wellington (TN), and Shillong (Meghalaya) to mark the 76th anniversary of the Indian Army's first landing in Srinagar.

https://newsonair.com/2022/10/27/infantry-day-2022-defence-minister-rajnath-singh-addresses-shaurya-diwas-celebrations/

हिन्दुस्तान

गुरुवार, 27 अक्टूबर 2022

वायुसेना के लिए परिवहन विमान वडोदरा में बनेंगे

वायुसेना के लिए 'सी-295 परिवहन विमान देश में ही बनेंगे। टाटा कंसोर्टियम और एयरबस वडोदरा में इन विमानों का निर्माण करेंगी। प्रधानमंत्री नरेंद्र मोदी 30 अक्तूबर को निर्माण संयंत्र की आधारशिला रखेंगे। एयरबस के साथ पूर्व में हुए समझौते के तहत कुल 56 परिवहन विमानों की खरीद होगी। इनमें से 16 स्पेन से बनकर आएंगे जबकि 40 विमान भारत में निर्मित किए जाने हैं। रक्षा सचिव अजय कुमार ने गुरुवार को प्रेस कांफ्रेस में यह जानकारी दी।

सैन्य परिवहन विमानों का पहला संयंत्र

कैबिनेट की सुरक्षा मामलों की समिति ने पिछले साल आठ सितंबर को 56 सी-295 परिवहन विमानों की खरीद को मंजूरी दी थी। इसके लिए मैसर्स एयरबस के साथ 21935 करोड़ रुपये का करार किया गया है। रक्षा मंत्रालय के अनुसार, देश में सैन्य परिवहन विमानों के निर्माण के लिए यह पहला संयंत्र स्थापित हो

रहा है। इसे इंडियन एयरक्राफ्ट कांट्रेक्टर तथा टाटा कंसोर्टियम (इसमें टाटा की दो कंपनियां टीएएसएल तथा टीसीएस शामिल) द्वारा स्थापित किया जा रहा है।

विमान निर्यात करने की भी योजना

रक्षा सचिव ने कहा कि अभी यह संयंत्र वायुसेना के लिए 40 विमानों का निर्माण करेगा लेकिन भविष्य में नागरिक उद्देश्यों के लिए भी इस विमान के उपयोग की संभावनाएं हो सकती हैं। इसके अलावा यहां से विमान निर्यात भी किए जाएंगे। वायुसेना के दूसरे विमानों के विकल्प के रूप में भी इन विमानों को खरीदने का निर्णय लिया जा सकता है।

हर साल आठ विमान मिलेंगे

अजय कुमार ने कहा कि अगले साल से प्रत्येक वर्ष एयरबस द्वारा स्पेन से 8-8 विमान हर साल भारत को सौंपे जाएंगे। सभी 16 विमानों की आपूर्ति 2025 तक होगी। जबकि 2026 से भारत में बनने वाले विमान वायुसेना को मिलने शुरू होने की संभावना है।

क्यों होंगे खास

- सी-295 परिवहन विमान की क्षमता 5-10 टन की होती है। यह वायुसेना के पुराने हो चुके एवीआरओ विमानों की जगह लेगा।
- यह विमान सामान की डिलीवरी के साथ पैरा ड्रापिंग के लिए भी उपयुक्त है। सैन्य साजोसामान के लिए यह काफी उपयुक्त होगा।
- यह परिवहन विमान 40-45 पैरा ट्रूपर को ले जाने में सक्षम होंगे जबकि 71 सामान्य यात्रियों को एक साथ ले जाया जा सकेगा।

रोजगार के मौके पैदा होंगे

रक्षा सचिव ने कहा कि वायुयानों के निर्माण में 96 फीसदी तक श्रम शक्ति देश में हासिल की जाएगी। इससे स्थानीय स्तर पर रोजगार सृजित होगा। इससे 600 उच्च पेशेवर रोजगार, 3000 परोक्ष रोजगार तथा 3000 मध्यम कौशल के रोजगार मिलेंगे। कुल 42.5 लाख कार्य घंटे सृजित होंगे।

सात राज्यों के लघु उद्योगों की भी हिस्सेदारी

- विमान संयंत्र लगने से 13400 किस्म के कलपुर्जे तथा 4600 छोटे पुर्जों का निर्माण देश में ही किया जाएगा। इस कार्य में सात राज्यों के 125 लघु उद्योगों की भी हिस्सेदारी होगी।
- एयरबस स्पेन में अपने कारखाने में इस संयंत्र के लिए 240 इंजीनियरों को इस संयंत्र के लिए प्रशिक्षित करेगी।

- वायुयान में इलेक्ट्रानिक वारफेयर सामग्री स्वदेश निर्मित इस्तेमाल की जाएगी। यानी देश में ही बनी होगी
- रक्षा मंत्रालय भारत में निर्मित हो रहे वायुयानों के लिए एक स्व प्रमाणन तंत्र भी स्थापित करेगा।

https://www.livehindustan.com/ncr/new-delhi/story-bureau-transport-aircraft-for-the-air-force-to-be-built-in-vadodara-7272697.html

Press Information Bureau
Government of India

Ministry of Defence

Thu, 27 Oct 2022

Transport Aircraft for Indian Air Force to be Made in India by Airbus Defence & TATA Consortium

Prime Minister Shri Narendra Modi to Lay Foundation Stone of the Project in Vadodara, Gujarat on October 30, 2022

In a major boost to 'Make in India' and domestic aviation manufacturing, Prime Minister Shri Narendra Modi will lay the foundation stone of a transport aircraft manufacturing project for the Indian Air Force (IAF) at Vadodara, Gujarat on October 30, 2022. Raksha Mantri Shri Rajnath Singh, Minister of Civil Aviation Shri Jyotiraditya M Scindia and Gujarat Chief Minister Shri Bhupendrabhai Patel are among those who will attend the function. It may be recalled that the Cabinet Committee on Security had, on September 08, 2021, approved the procurement of 56 C-295MW transport aircraft from M/s Airbus Defence and Space S.A., Spain. On September 24, 2021, Ministry of Defence signed a contract with M/s Airbus Defence and Space S.A. for acquisition of the aircraft with associated equipment.

Addressing a press conference in New Delhi on October 27, 2022, Defence Secretary Dr Ajay Kumar said, as part of the contract, 16 aircraft will be delivered in flyaway condition and 40 will be manufactured in India by the Indian Aircraft Contractor, TATA Consortium of Tata Advanced Systems Limited (TASL) and Tata Consultancy Services (TCS) led by TASL. This is the first project of its kind in which a military aircraft will be manufactured in India by a private company. The total cost of the project is Rs 21,935 crore. The aircraft can be used for civilian purposes as well.

Delivery schedule

The first 16 fly-away aircraft are scheduled to be received between September 2023 and August 2025. The first Made in India aircraft is expected from September 2026.

Aircraft capability

C-295MW is a transport aircraft of 5-10 tonne capacity with contemporary technology that will replace the ageing Avro aircraft of IAF. It has a rear ramp door for quick reaction and para dropping of troops and cargo. Short take-off/land from semi-prepared surfaces is another of its features. The aircraft will strengthen the logistic capabilities of the IAF.

Aatmanirbharta

The project offers a unique opportunity for the Indian private sector to enter into technology intensive and highly competitive aviation industry. It will augment domestic aviation manufacturing resulting in reduced import dependence and expected increase in exports. Also, 96% of the total man hour work per aircraft that Airbus employs at its manufacturing facility at Spain will be undertaken in India by the TATA Consortium. Manufacturing of over 13,400 Detail Parts, 4,600 sub-assemblies and all the seven Major Component Assemblies will be undertaken in India, along with tools, jigs and testers. Various systems such as engines, landing gear, avionics, EW suite etc. will be provided by Airbus Defence & Space and integrated on the aircraft by the TATA Consortium. The aircraft will be tested as an integrated system by the TATA Consortium. The aircraft will be flight tested and delivered through a Delivery Centre at the TATA Consortium facility.

All 56 aircraft will be fitted with indigenous Electronic Warfare suite of Indian DPSUs – Bharat Electronics Ltd and Bharat Dynamics Limited. After completion of delivery of 56 aircraft to IAF, M/s Airbus Defence & Space will be allowed to sell the aircraft manufactured in India to civil operators and export to countries which are cleared by the Government of India.

Employment Generation

The TATA Consortium has identified more than 125 in-country MSME suppliers spread over seven states. This will act as a catalyst in employment generation in the aerospace ecosystem of the country and is expected to generate 600 highly skilled jobs directly, over 3,000 indirect jobs and an additional 3,000 medium skill employment opportunities with more than 42.5 lakh man hours of work within the aerospace and defence sector of India. Nearly 240 engineers will be trained at Airbus facility in Spain. Officer on Special Duty, Department of Defence Shri Aramane Giridhar, Vice Chief of Air Staff Air Marshal Sandeep Singh, DG (Acquisition) Shri Pankaj Agarwal and other senior officials of Ministry of Defence & IAF were present during the press conference.

https://pib.gov.in/PressReleasePage.aspx?PRID=1871267

TIMESNOW

Thu, 27 Oct 2022

DRDO Unveils Zorawar Light Tank Concept for Indian Army; How will the Indigenous ICV be Gamechanger in Ladakh

Defexpo 2022 in Gandhinagar, Gujarat, included a scale model of the Zorawar light tanks from India's Defence Research and Development Organization (DRDO), which it is creating together with Larsen & Toubro (L&T) for the Indian Army. The new tank prototype is anticipated to be unveiled, in late 2023. The Indian Army sent a request for information (RFI) to domestic and international suppliers in 2021 indicating a desire to buy 350 locally-made light tanks for use in a variety of terrains. The Indian Army is giving priority to buying the indigenous Indian light tank with the codename "Zorawar" after having a difficult time deploying large Main Battle Tanks (MBTs) in the Eastern Ladakh region amid a standoff with China.

Following its experience of deploying armour at a height of 15,000 feet to outmanoeuvre the movement of Chinese forces, the Indian Army is quickening the acquisition process of the indigenous Indian light tank. The Indian Army originally identified a requirement for a light tank in 2009 when an RFI was launched to buy 300 of them. One of the most important factors in defining the operational capability of ground troops is the armour equipment profile. Recent events along the northern border have shown that China has introduced a sizable number of cutting-edge medium and light tanks, but India is still forced to make do with the heavy tanks it purchased from Russia. For instance, in addition to the 45-ton T-72 tanks that had already been stationed nearby, India also sent a fleet of T-90 tanks, which weigh about 46 tonnes. These massive tanks, nevertheless, are not suited to high-altitude, rocky terrain.

China's ZTQ-15 light tanks quickly passed through in contrast to Indian armour deployment, while Indian armoured battalions struggled to move their heavy T-72s across passes up to 17,500 feet in elevation. The operational difficulties of employing massive MBTs in mountain warfare are what motivates Indian efforts to create small tanks. The armoured corps and mechanised infantry are undertaking a comprehensive modernisation effort, which includes Project Zorawar.

Zorawar is designed to work in a variety of environments, including island nations, high-altitude regions, and remote areas. A high level of situational awareness, active defence systems, drone integration, and specialised technology, such as artificial intelligence (AI), are some of its features, according to officials. Additionally, the tank will be very portable for quick deployment to accommodate operating requirements. The difficulty in the defence supply chains resulting from the Russian-Ukrainian conflict has also had an impact on the development of a tank locally. Russia is India's top defence supplier, and both of the MBTs used by the Indian Army were made in Russia.

https://www.timesnownews.com/mirror-now/in-focus/drdo-unveils-zorawar-light-tank-concept-for-indian-army-how-will-the-indigenous-icv-be-gamechanger-in-ladakh-article-95124696

FINANCIAL EXPRESS
Read to Lead

Thu, 27 Oct 2022

India to Host UN Counter-Terrorism Meet for First Time, Focus on Threat from Emerging Tech

Amidst the ongoing Ukraine-Russia war, for the first time, United Nations Security Council's Counter Terrorism Committee (CTC) will meet in India. The two day anti-terror meet which will take place in Mumbai and New Delhi October 28 & Oct 29 will focus on the threats posed by new and emerging technologies. The meeting in India marks the first time since 2015 that the Committee is meeting outside the UN Headquarters based in New York, US. India is currently holding the chair of the Counter Terrorism Committee of the UNSC which was established in 2001, pursuant to the resolution 1373 of the UNSC. "Countering the use of new and emerging technologies for terrorist purposes" is the title of the CTC meeting taking place in India for the first time.

What will be the focus areas?

Briefing media persons in New Delhi ahead of the two day meet, Sanjay Verma, Secretary (West), Ministry of External Affairs said that there are three focus areas including: proliferation of unmanned aerial systems, such as drones; financing for global terror networks; and Internet and social media.

What to look for?

According to Secretary Verma, there will be opening session in Mumbai and tribute will be paid to the victims of the terror attacks of 26/11. There will be a ceremony at Hotel Taj Mahal Palace, and external affairs minister Dr S Jaishankar, and 15 current members of the UNSC, incoming five and other senior officials of the UN will be present. The meeting will be a call to all countries to stay a step ahead and put in place a system to counter the technologies used by terror outfits and to fight the scourge of terrorism together. According to Ambassador Kamboj the scourge of terrorism was clearly a "transnational" issue. And to provide effective solutions, collaboration between Member States was crucial. In an obvious reference to the China-Pakistan axis as well as recent instances when China has blocked India's move to sanction some Pakistan based terrorist, Ambassador Kamboj made the point that there can be nor "good or bad terrorists" and added: "Those who propagate this distinction have an agenda and those who cover up for them are just as culpable."

Who all are attending?

The British foreign secretary James Cleverly; UAE's minister of state for international cooperation Reem Ebrahim Al Hashimy; foreign secretary of Gabon who is also president of the United Nations Security Council Michael Moussa ADAMO; Albania's deputy foreign minister of Albani Megi Fino; and Ghana's foreign minister Shirley Ayorkar Botchwey. Also, the UN counter terror delegation headed by under-secretary general Vladimir Voronkov, will be present. According to reports, Senior American diplomat Chris Lu will lead the US delegation and will attend both meetings in Mumbai and New Delhi.

Threat of emerging technologies

According to the UN, these emerging technologies are being increasingly used by countries across the globe for countering terrorism as well as security purposes. However, on the other hand these technologies are also being misused on regular basis by various terrorist groups for their own activities and attacking different facilities and systems. In her remarks at the briefing in New Delhi ahead of the two day meet, Ambassador Ruchira Kamboj, Permanent Representative of India to the UN in New York, who is also the chair of the Counter Terrorism Committee, said that the meeting would reflect developments and also the latest evidence-based research on terrorism and technology use. And will also provide a platform for member states, relevant operational partners and key stakeholders to bring together real world expertise and a wealth of knowledge.

This will also be a platform to exchange ideas on how the tech sector can help in dealing with the spread of terrorist content online, and understand the manner in which this can spread of terrorist narratives can be countered. All the member states as well as other stake holders will talk about the tech savvy terrorist who are well equipped to using technological innovations, appeals for donations, move money around through crowd funding, merchandise sales, using social platforms and various other methods.

Drones and AI

Several member states have initiated steps to counter the increasing use of drones by the terrorist outfits. The potential use of robotics, artificial intelligence (AI), 3-D printing, synthetic biotech, unmanned aerial systems, and machine learning, for illegal ends. The meeting will also discuss amongst themselves the misuse of information and communications technologies, especially the internet and digital platforms.

https://www.financialexpress.com/defence/india-to-host-un-counter-terrorism-meet-for-first-time-focus-on-threat-from-emerging-tech/2752871/lite/

Outlook

Thu, 27 Oct 2022

South Africa's Defence Maker to Expand Armoured Vehicle Production in India for Exports

In a big boost to the Modi government's 'Make in India' push, South African defence equipment maker Paramount Group is looking to expand its manufacturing in India. According to a report by The Print, the Paramount Group is in talks with India's Kalyani Group to expand its operations in India. The two groups are looking to manufacture India-specific modified M4 armoured vehicles. The M4 vehicles have a high level of ballistic and blast protection and are able to withstand 50kgs of Trinitroluene (TNT), improvised explosive devices and roadside bombs. The M4's maximum payload capacity is 2.3 tonnes and it can seat up to eight soldiers. The armoured vehicle's top speed is 140kmp/h with a maximum range of 800kms. Bharat Forge, which is a part of the Kalyani Group, is currently integrating the vehicle with Israeli Spike anti-tank guided missiles, according to The Print's report.

Paramount Group's founder, Ivor Ichikowitz, told the publication that they were seeing huge demand for their product and were planning to double down on the collaboration for more production. The Kalyani M4 is currently manufactured at the company's factory in Pune. In the recently concluded DefExpo 2022, Kalyani Group also announced its plans to set up the world's largest artillery manufacturing facility in the country, where it will produce one gun per day. The company currently takes 30 days to produce six guns. Under the Make in India scheme, various foreign manufacturers are considering plans to produce their products in India. US-based Lockheed Martin has stated that if the Indian Air Force (IAF) selects its F-21 fighter jet in the multi-role combat aircraft tender, it will establish a production line for the aircraft in the country.

Some international defence firms have already signed deals to begin manufacturing in India. For instance, Russia's Rosoboronexport has just signed a deal at DefExpo 2022 to manufacture its AK-203 assault rifle by year-end. The manufacturing is expected to be carried out at Amethi's Korwa Ordnance Factory in Uttar Pradesh. From 2024, Sweden's Saab Defence will also set up a facility in India to produce its popular Carl-Gustaf M4 multi-role weapon system. India is the largest importer of defence goods in the world. At present, the country has been reducing its import list by providing incentives to foreign companies to 'Make in India.'

https://www.outlookindia.com/business/south-africa-s-defence-maker-to-expand-armoured-vehicle-production-in-india-for-exports-report-news-232838

Thu, 27 Oct 2022

An Airfield, Crucial to India's Defence Against China, Getting Makeover

India will upgrade an airfield in eastern Ladakh, just 50 km from the Line of Actual Control, to operate fighter jets, news agency ANI reported. The Indian Air Force (IAF) already operates fighter jets from Leh and Partapur, and the upgrade in eastern Ladakh's Nyoma airfield will add to the IAF's striking power. American-origin Chinook heavy-lift helicopters and the C-130J turboprop cargo aircraft have been regularly bringing in troops and supplies via Nyoma airfield amid the long standoff with China. The Apache attack helicopters, IAF's special forces Garuds and Mi-17 helicopters have been operating from Nyoma. If the Nyoma airfield can also support fighter jet operations, the IAF can counter threats much effectively, a defence officer told ANI.

"The ALG (advanced landing ground) is going to be soon upgraded for fighter aircraft operations as most of the required clearances and approvals have come already. As per plans, the construction of the new airfield and the military infrastructure would be done by the Border Roads Organisation (BRO)," a defence officer told ANI. The Border Roads Organisation (BRO) will handle the upgrade work at the airfield. Indian Air Force Group Captain Ajay Rathi explained the importance of having an advanced landing ground such as Nyoma Nyoma ALG has strategic importance due to its close proximity to the Line of Actual Control. It bridges the critical gap between Leh airfield and the LAC enabling quick movement of men and material in eastern Ladakh, overcoming terrain friction," Captain Rathi had said.

Indian and Chinese troops withdrew from Gogra-Hot Springs in Ladakh after reaching a consensus in military talks in September. The Chinese forces later returned to their pre-2020 positions. India and China disengaged so far from the Galwan region where fierce clashes between soldiers of both sides took place in June 2020, in which 20 Indian soldiers laid down their lives for the country. Over 40 Chinese soldiers were killed or injured.

https://www.ndtv.com/india-news/an-airfield-crucial-to-indias-defence-against-china-getting-makeover-3466974

Hindustan Times

Fri, 28 Oct 2022

US Expresses Support for India Against China's Coercive Tactics at Border

Washington Terming China as the most consequential strategic competitor to the United States for the coming decades, the US national defence strategy (NDS) has committed to deepening America's major defence partnership with India to enhance its ability to deter China both at land and sea. It has also said that the US will support allies and partners against acute forms of "grey zone coercion" by China, including at the disputed border with India. Secretary of Defense Lloyd J Austin released the NDS on Thursday, days after the Joe Biden administration released its national security strategy which declared that its top priority was outcompeting China and constraining Russia.

In his introductory note to the strategy, Austin said that China remained the US's "most consequential strategic competitor" for the coming decades. "I have reached this conclusion based on the PRC's increasingly coercive actions to reshape the Indo-Pacific region and the international system to fit its authoritarian preferences, alongside a keen awareness of the PRC's clearly stated intentions and the rapid modernization and expansion of its military." The NDS, Austin noted, directed the Department of Defense to "act urgently" to "sustain and strengthen" American deterrence against China, which has been identified as the pacing challenge for the department. The strategy also speaks of working to reinforce "robust deterrence" against Russia, while "mitigating and protecting against threats from North Korea, Iran, violent extremist organizations and trans-boundary challenges such as climate change".

In a section on the security environment, the strategy says that China is seeking to undermine US alliances and partnerships in the region and leverage its growing capabilities to "coerce neighbours and threaten their interests". It terms China's "increasingly provocative rhetoric and coercive activity" towards Taiwan as destabilising, and risking miscalculation. "This is a part of a broader pattern of destabilizing and coercive PRC behaviour that stretches across the East China Sea, South China Sea and the Line of Actual Control", the last being a nod to China's aggression at the border with India. The NDS also outlines China's growing military capabilities, acknowledging that Beijing has modernised and expanded "nearly every aspect" of the People's Liberation Army, "with an aim to offset U.S. military advantages". The PLA is also rapidly advancing and integrating its "space, counterspace, cyber, electronic and informational warfare

capabilities". The US strategy notes that PLA is also expanding its global footprint, establishing a "more robust overseas and basing infrastructure", while accelerating the modernisation and expansion of its nuclear capabilities.

The US, NDS says, will increasingly face the challenge of "deterring two major powers with modern and diverse nuclear capabilities", China and Russia, creating "new stresses on strategic stability". On the Indo Pacific, NDS says that Pentagon will "reinforce and build out a resilient security architecture" to sustain a "free and open regional order and deter attempts to resolve disputes by force". The strategy says the US will modernise its alliance with Japan and strengthen "combined capabilities by aligning strategic planning and priorities in a more integrated manner"; Washington will deepen its alliance with Australia with "investments in posture, interoperability and expansion of multilateral cooperation" and foster advanced tech cooperation through AUKUS and Quad.

It is in this section that the strategy speaks of India. "The Department will advance our Major Defense Partnership with India to enhance its ability to deter PRC aggression and ensure free and open access to the Indian Ocean region." It then goes on to commit support for Taiwan's "asymmetric self-defense", work with South Korea to improve its defence capability, promote the role of ASEAN in addressing regional security challenges, and "ensure power projection in a contested environment". The strategy then says that the US will work with allies and partners to address "acute forms of gray zone coercion" by China's campaigns to establish control over the "East China Sea, Taiwan Strait, South China Sea, and disputed land borders such as with India".

NDS has listed four top priorities for Pentagon – defending the homeland; deterring strategic attacks against the US, its allies and partners; deterring aggression and preparing to prevail in conflict; and ensuring US's military advantage by building a resilient joint force and defence ecosystem. The strategy plans to achieve these priorities by focusing on integrated deterrence, campaigns and actions, with integrated deterrence entailing working seamlessly across "warfighting domains, theaters, spectrum of conflict, all instruments of US national power, and our networks of Allies and partnerships".

https://www.hindustantimes.com/india-news/us-expresses-support-for-india-against-china-s-coercive-tactics-at-border-101666898561525.html

Business Standard

Fri, 28 Oct 2022

US Plans to Fortify Defence Ties with India to Deter China: Pentagon

The Biden administration plans to advance its defence ties with India to enhance its ability to deter Chinese aggression and address gray zone coercion in areas such as disputed land borders, as per the US National Defense Strategy 2022 released on Thursday. This newly released document which was released by the US Defence Department is an unclassified defence strategy that nests beneath President Biden's National Security Strategy, which was released earlier this month amid growing Chinese aggression. This Congressionally-mandated strategy review sets

the strategic direction of the Department to support US national security priorities and flows directly from President Biden's National Security Strategy. "The Department will advance our Major Defence Partnership with India to enhance its ability to deter PCR (People's Republic of China) aggression and ensure free and open access to the Indian Ocean region," the document read. It states that China presents the most consequential and systemic challenge, while Russia poses acute threats to vital US national interests abroad and to the homeland. "The most comprehensive and serious challenge to US national security is the PRC's coercive and increasingly aggressive endeavour to refashion the Indo-Pacific region and the international system to suit its interests and authoritarian preferences," the document adds.

Regarding the Indo-Pacific Region, it says "The Department will also support Ally and partner efforts, in accordance with US policy and international law, to address acute forms of gray zone coercion from the PRC's campaigns to establish control over the East China Sea, Taiwan Strait, South China Sea, and disputed land borders such as with India." The National Defence Strategy includes the Nuclear Posture Review (NPR) and the Missile Defence Review (MDR). The Nuclear Posture Review, which has outlined the course of action for the Pentagon, is a legislatively-mandated review that describes US nuclear strategy, policy, posture, and forces. The Nuclear Posture Review (NPR) reaffirms that the keyrole of US nukes is to deter nuclear attacks on the country and its partners.The Missile Defence Review is a review conducted pursuant to the President and the Secretary of Defence guidance, while also addressing the legislative requirement to assess US missile defence policy and strategy.

https://www.business-standard.com/article/international/us-plans-to-fortify-defence-ties-with-india-to-deter-china-pentagon-122102800034_1.html

THE ECONOMIC TIMES

Thu, 27 Oct 2022

Chinese, Russia Defence Chiefs Hold Telephone Conference

Chinese Defence Minister Wei Fenghe held a recent telephone call with his Russia counterpart, Sergei Shoigu, to "exchange views on international and regional issues of mutual concern," an official said Thursday. Speaking at a monthly briefing, Defence Ministry spokesperson Col. Tan Kefei gave no further details and did not say exactly when the call took place. China has tacitly backed Russia in its aggression against Ukraine, accusing the US and NATO of provoking the conflict and refusing to refer to it as an invasion in deference to Moscow. China has stopped short of providing Russia with arms or becoming directly involved in the conflict, something the US has strongly warned against.

Just weeks before Russia's February invasion, Chinese President Xi Jinping issued a joint statement with Russian President Vladimir Putin saying their countries had a "no limits" friendship. Putin reaffirmed that relationship most recently in a congratulatory message to Xi on Sunday on his receiving an unprecedented third term as head of China's Communist Party. Shoigu called his counterparts in India and China on Wednesday to share Moscow's concern about "possible Ukrainian provocations involving a dirty bomb,'" according to the Russian Defence Ministry.

China and Russia have increasingly aligned their foreign policies in opposition to the US-led Western world order. However, Russia's setbacks in its invasion have seen Beijing take an increasingly dominant role in the relationship, although China is also currently dealing with a faltering economy. The Russian invasion has refocused attention on China's threat to use military force to annex Taiwan, the self-governing island republic and close U.S. ally that it claims as its own territory. Taiwan has joined the US and its allies in backing Ukraine. On Wednesday, its foreign minister, Joseph Wu, said Taipei would offer an additional $56 million to Kyiv to reconstruct schools, hospitals and other infrastructure destroyed by Russia. Taiwan will also offer scholarships for Ukrainians to study on the island, Wu said. Ukrainian legislator Kira Rudik, who is part of a delegation visiting Taiwan this week, said the island could be the next front in the fight for democracy. "This is why we need to support each other, this is why we are getting closer and closer in our relationship. We are going to win this war together," Rudik was quoted as saying by Taiwan's Central News Agency.

https://economictimes.indiatimes.com/news/defence/chinese-russia-defence-chiefs-hold-telephone-conference/articleshow/95122170.cms?from=mdr

R. REPUBLICWORLD.COM

Thu, 27 Oct 2022

US Military Launches Rocket to Test Hypersonic Weapons to Develop New Defence Class

The US military on Wednesday conducted a test launch of a rocket carrying experiments for hypersonic weapons development at the Wallops Flight Test Facility in Virginia. The rocket carried 11 experiments designed and programmed to test and collect data essential for the research into hypersonic weapons to support the joint Army-Navy program, the US Navy stated, reported CNN. This was the second such test carried out under the program. The joint venture by US Army and the US Navy focuses on developing both sea and land-based hypersonic capabilities. The first test was conducted in October 2021.

In this test, a sounding rocket was fired, which carried out different experiments to gather data and collect information on components of hypersonic missiles. This included information on heat-resistant materials and high-end electronics.

Hypersonic program of the US Army and Navy

Describing the recent launch, director of Strategic Systems Programs Vice Admiral Johnny Wolfe said, “The launch today went extremely well,” reported CNN. He added, “As a matter of fact, we’ve just gotten done looking through our key observables, and every piece of data that we wanted to collect - at least preliminarily - has shown that we collected all that data.” Meanwhile, the US Navy revealed in a statement that a second rocket is scheduled for launch on Thursday with an objective to carry out an additional 13 experiments designed to inform hypersonic weapons development.

The data collected from these test launches will support the development of the US Navy's Conventional Prompt Strike hypersonic system and the US Army's Long Range Hypersonic Weapon. A Common Hypersonic Glide Body will be utilized by both programs. It is a projectile carried atop a booster rocket that coasts towards its target at Hypersonic speeds. Hypersonic weapons travel at speeds greater than Mach 5, or approximately 6174 Kilometers per hour, making them difficult to detect and intercept in time. The missiles are also capable of manoeuvring and changing altitude, allowing them to evade missile defence systems.

The development of hypersonic weapons was made one of the top priorities by the Pentagon after China conducted successful hypersonic launches last year. Moreover, Russia has begun to use hypersonic missiles against Ukrainian forces amid the war between the two nations. Following a hypersonic weapon test by China in 2021, Chairman of the US Joint Chiefs of Staff Gen Mark Milley called the test "a very significant technological event."

https://www.republicworld.com/world-news/us-news/us-military-launches-rocket-to-test-hypersonic-weapons-to-develop-new-defence-class-articleshow.html

The EurAsian Times

Wed, 26 Oct 2022

Russia's Modified Su-57 Stealth Fighter Variant with Stage 2 Engine 'Soars & Roars' in Test Flight

A modernized Su-57 stealth fighter jet took to the skies on its maiden flight on October 21, 2022, at Zhukovsky flight test center near Moscow, the United Aircraft Corporation (UAC) announced on October 25, 2022. According to UAC, the aircraft was piloted by a test pilot of the Sukhoi Experimental Design Bureau, Sergey Bogdan. The 56 minutes test flight was incident free. "A set of onboard equipment with extended functionality, intelligent crew support, and the possibility of using a wide range of new weapons is being tested on the aircraft. It is also possible to install the engine of the second stage on the aircraft," the press service said.

Intelligent Crew Support

Intelligent crew support allows the Su-57's onboard computer to perform copiloting tasks, freeing the pilot to focus on critical functions. The aircraft takes over piloting and preparing the use of weapons, according to Yuri Slyusar, Director General of the UAC. The aircraft also features a high degree of intelligent automation in combat. On July 28, 2021, Nikita Dorofeev, head of the cockpit department of the Sukhoi Design Bureau, said that in the future, a Su-57 pilot would be able to control the plane with eye movements or voice. Despite the complexity of such a system, since the human pupil is constantly moving unconsciously, its prototype already exists, Dorofeev pointed out.

Also, at present, the task is to teach the system to understand not learned phrases, but the context, so that in extreme conditions, "the pilot does not need to remember exactly which phrase he should pronounce." According to Rafael Suleimanove, test pilot of the Sukhoi

Design Bureau, the Intelligent Crew Support allows the Su-57 to "perform everything in the air."

"Piloting this aircraft is very pleasant and comfortable. It allows you to perform everything in the air. These capabilities, coupled with powerful weapons that allow you to perform tasks both in the air and on the ground, in any weather conditions, day and night, in any latitudes, make it a potent weapon in the hands of the pilots," said the test pilot. Suleimanov also noted that the generations of Su aircraft are very similar. Pilots who fly the Su-35 can easily fly the fifth-generation fighter.

Stage 2 Engine

When originally conceived, the Su-57 was envisaged to be powered by a clean sheet design new engine referred to as Izdeliye (Product) 30, which would enable it to cruise at supersonic speed without the use of gas-guzzling afterburners. The aircraft was, however, developed and tested using an interim power plant – NPO Saturn Product 117 engine, which is derived from the AL-41F-1S after-burning turbofans developed for the Su-35. The Izdeliye 30 will improve the thrust and fuel efficiency of the fighter and reduce weight and maintenance requirements. The Izdeliye 30 engine was first flight tested on December 5, 2017.

Since then, the engine has undergone intensive flight testing. As of October 2019, the engine had undergone 16 flight tests on a modified Su-57. In December 2019, Izvestia quoted Yuri Slyusar, general director of the UAC, saying that the Stage 2 engine was undergoing intensive testing. The engine had been flight tested for thrust vectoring, and its oil system had been tested under adverse flight conditions. Bench testing of the engine, too, was ongoing. A Sukhoi Design Bureau employee told TASS in September 2022 that, unlike 4th-gen fighters, the Su-57 can maintain supersonic speeds during most of its mission profile, even when engaged in combat.

"If a fourth-generation aircraft lives at subsonic speeds most of the time and goes to perform specific combat missions at supersonic flight speeds, then this aircraft (Su-57) is designed for most of its 'life' at supersonic flight speeds," he said.

Operational Use In Ukraine

On October 18, 2022, the Russian MoD finally broke its silence on using Su-57 fighters in Ukraine's ongoing special military operations (SMO). General Sergei Surovikin, commander of the joint group of troops in the area of the SMO, told the media, "In terms of the quality of combat use, I would especially like to single out the Su-57 fifth-generation multifunctional aircraft. He said that having a wide range of weapons solves multifaceted tasks of hitting air and ground targets in each sortie," he said. General Surovikin's comment suggests that the Su-57 is being used both in the air-to-air and air-to-ground roles, and in both roles, it had scored hits.

In June 2022, Izvestia reported that Russia used a flight of four Su-57 fighter jets linked into a single information network during a special operation to defend Donbas to destroy the enemy's air defenses. An earlier article in Eurasian Times dwelt on the weapon systems and tactics likely being employed by the Russian Air Force for Su-57 operations as part of the SMO.

Production Ramp Up

On September 22, 2022, Rostec said that a new batch of Su-57 fighters would go to the Russian Aerospace Forces soon, and the pace of aircraft production would be increased. The director of the state corporation, Sergei Chemezov, said that the Su-57s are in a high degree of readiness, and the machines will go to the Russian Aerospace Forces this year.

https://eurasiantimes.com/russias-newly-modified-su-57-stealth-fighter-variant-for-stage-2/

Thu, 27 Oct 2022

9th Brigade Becomes the Australian Army's First Integrated Combat Brigade

Adelaide's 9th Brigade has become the Australian Army's first truly integrated combat brigade, with the incorporation of several full-time Adelaide-based units into what was previously a part-time organisation. A transition of authority parade was held at RAAF Base Edinburgh today to mark the move of the 1st Armoured Regiment, the 7th Battalion, The Royal Australian Regiment, the Adelaide-based elements of the 1st Combat Service Support Battalion, and the 144th Signal Squadron to 9th Brigade. This parade also marks the 9th Brigade's transfer from the 2nd Division to Forces Command. The event was attended by the Chief of Army Lieutenant General Simon Stuart, AO, DSC, who said the combat brigade restructure was an important part of Army's modernisation plan.

"These changes ensure our Army continues to adapt to meet the challenges of the day and set the best possible conditions to ensure success in the future," LTGEN Stuart said. "Tonight we formalise adjustments to the 9th Brigade that simplify command arrangements and strengthen Army's presence here in South Australia." Commander of the 9th Brigade Brigadier Graham Goodwin, CSC, welcomed the units and their members to 9th Brigade. "The transformation of the 9th Brigade is the cornerstone of the combat brigade restructure," Brigadier Goodwin said. "These changes ensure we are able to contribute critical land power capabilities to the Joint Force – in times of peace and war."

The restructured 9th Brigade in South Australia will leverage the Army's flexible employment arrangements and build relationships with industry, academia and sovereign-owned capability providers. "I am excited about the opportunities that a fully integrated combat brigade offers to both our full and part-time workforce," Brigadier Goodwin said. "Adelaide-based units already have strong relationships with South Australians and local industry – bringing everyone under the same brigade will strengthen these ties further." Commander of the 1st Brigade Brigadier Nick Foxall, AM, DSM, said the transfer enabled the 1st Brigade to focus on building the Australian Army's littoral manoeuvre capability centred in Darwin.

"The transfer places the Adelaide-based units closer to their higher headquarters, as opposed to being separated by thousands of kilometres as they previously were, and enables a more agile 1st

Brigade to focus on delivering the Australian Army's littoral manoeuvre centre of excellence," Brigadier Foxall said.

https://news.defence.gov.au/media/media-releases/9th-brigade-becomes-australian-armys-first-integrated-combat-brigade

Science & Technology News

The Tribune

Thu, 27 Oct 2022

ISRO to Send Astronauts to Space

The human space mission of the Indian Space Research Organisation (ISRO) envisages sending two to three astronauts to space for spending up to three days in the low earth orbit of about 400 km above the earth, R Umamaheswaran, Director of the Human Space Flight Centre (HSFC) of Indian Space Research Organisation (ISRO) said here on Thursday. Talking to reporters on the sidelines of "Indian Space Congress 2022" conference here, the HSFC chief said four astronauts were currently undergoing training for the mission, which is expected to take off towards the end of next year. The astronauts have undergone training in Russia, Umamaheswaran said, adding preparation was underway for the challenging part of the training which was to create an environment similar to that in the spacecraft after launch.

https://www.tribuneindia.com/news/nation/isro-to-send-astronauts-to-space-445033

NEWS18

शुक्रवार, 28 अक्टूबर 2022

'गगनयान' बढ़ाएगा भारत की शान; फरवरी में मिशन की पहली टेस्ट फ्लाइट; ISRO ने बताया पूरा प्लान

इसरो के 'गगनयान' मिशन को लेकर बड़ा अपडेट आया है. इसरो यानी भारतीय अंतरिक्ष अनुसंधान संगठन अगले साल फरवरी से भारत के पहले मानव अंतरिक्ष उड़ान मिशन के लिए कई परीक्षण उड़ानें शुरू करेगा. इसरो के मानव अंतरिक्ष उड़ान केंद्र के निदेशक आर उमामहेश्वरन ने बताया कि अंतरिक्ष एजेंसी ने चालक दल के मॉड्यूल के परीक्षण के लिए वजनी चिनूक हेलीकॉप्टर और सी-17 ग्लोबमास्टर परिवहन

विमान को तैनात करने की भी योजना बनाई है. मॉड्यूल के जरिए गगनयान मानव अंतरिक्ष उड़ान मिशन के तहत अंतरिक्ष यात्रियों को तीन दिनों के लिए कक्षा में ले जाएगा.

अगले साल कम से कम 17 अलग-अलग परीक्षणों की योजना

भारतीय अंतरिक्ष कांग्रेस को संबोधित करते हुए आर उमामहेश्वरन ने कहा कि इसरो के वैज्ञानिकों ने पर्यावरण नियंत्रण प्रणाली के डिजाइन को पूरा कर लिया है, जो अंतरिक्ष यात्रियों के लिए पृथ्वी की परिक्रमा करते समय क्रू सर्विस मॉड्यूल में रहने की स्थिति सुनिश्चित करेगा. दरअसल, अगले साल दिसंबर में मानव रहित अंतरिक्ष उड़ान को अंजाम देने से पहले इसरो द्वारा अगले साल कम से कम 17 अलग-अलग परीक्षणों की योजना बनाई गई है.

PM मोदी ने 2018 में किया था ऐलान

प्रधानमंत्री नरेंद्र मोदी ने 2018 में स्वतंत्रता दिवस के अपने संबोधन में गगनयान मिशन की घोषणा करते हुए 2022 में देश के औपनिवेशिक शासन से आजादी के 75 साल पूरे होने पर अभियान को अंजाम देने की दिशा में एक अस्थायी लक्ष्य का जिक्र किया था. हालांकि, कोविड महामारी के कारण अभियान में देरी हुई और भारतीय अंतरिक्ष यात्रियों के 2024 के अंत या 2025 की शुरुआत में अपनी पहली अंतरिक्ष उड़ान शुरू करने की संभावना है.

'छह महीने के भीतर क्रू मॉड्यूल मिल जाएगा'

उमामहेश्वरन ने कहा कि क्रू मॉड्यूल और पर्यावरण नियंत्रण प्रणाली को डिजाइन करने का काम चुनौतीपूर्ण था क्योंकि अंतरिक्ष यात्रियों को पुन: प्रवेश चरण के दौरान भी सहज महसूस करना चाहिए, जब अंतरिक्ष कैप्सूल के बाहर का तापमान 2000 डिग्री सेल्सियस से अधिक तक हो सकता है. 'सैटकॉम इंडस्ट्री एसोसिएशन' द्वारा आयोजित कार्यक्रम के इतर उमामहेश्वरन ने कहा, 'क्रू मॉड्यूल पूरा हो गया है जहां अंतरिक्ष यात्रियों को बैठना और उड़ना है, और निर्माण का काम जारी है. छह महीने के भीतर हमें क्रू मॉड्यूल मिल जाएगा.'

उमामहेश्वरन ने बताया पूरा प्लान

उमामहेश्वरन ने कहा कि पर्यावरण नियंत्रण प्रणाली परियोजना का एक महत्वपूर्ण तत्व है क्योंकि यह क्रू मॉड्यूल में परिवेश में रहने की स्थिति प्रदान करती है. उन्होंने कहा, 'हमें ऑक्सीजन प्रदान करना है, कार्बन डाइऑक्साइड को हटाना है, नमी को दूर करना है, तापमान बनाए रखना है और यह भी सुनिश्चित करना है कि आग का कोई खतरा न हो. यह एक बहुत ही जटिल तकनीक है जो कोई भी देश हमें नहीं देगा.'वरिष्ठ वैज्ञानिक ने कहा कि पर्यावरण नियंत्रण प्रणाली को स्वदेशी रूप से विकसित करने का निर्णय लिया गया!

4 कैंडिडेट हुए हैं शॉर्टलिस्ट

उमामहेश्वरन ने कहा, 'हमारे पास डिजाइन करने की क्षमता है, इसलिए हम ऐसा कर रहे हैं और इसमें कुछ समय लग रहा है. हमने सभी डिज़ाइन को पूरा कर लिया है और अब यह साबित करने का समय है कि जो कुछ भी डिज़ाइन किया गया है वह पर्याप्त रूप से सुरक्षित है.'उन्होंने कहा कि चार उम्मीदवारों को अंतरिक्ष उड़ान के लिए 'शॉर्टलिस्ट' किया गया है और उन्होंने रूस में अपना प्रारंभिक प्रशिक्षण पहले ही पूरा कर लिया है. उमामहेश्वरन ने कहा कि 'शॉर्टलिस्ट' किए गए अंतरिक्ष यात्री वर्तमान में बेंगलुरु में अंतरिक्ष यात्री प्रशिक्षण सुविधा में आगे के प्रशिक्षण से गुजर रहे हैं.

https://hindi.news18.com/news/nation/isro-official-says-first-test-flight-of-gaganyaan-mission-in-february-4807969.html

INDIA TV

Thu, 27 Oct 2022

ISRO Announces Time Frame for Gaganyaan Mission- India's Maiden Human Space Flight

If you are one of science enthusiasts and are waiting eagerly for India's maiden human space flight mission, here is good news for you. The Indian Space Research Organisation (ISRO) announced that it will start a series of test flights for India's first human space flight mission from February 2022. The space agency also plans to deploy the heavy lift Chinook helicopter and the C-17 Globemaster transport aircraft for testing the crew module, which will carry astronauts into the orbit for three days as part of the Gaganyaan human space flight mission, R Umamaheshwaran, Director of ISRO's Human Space Flight Centre said.

ISRO had completed the design of the Environment Control System

Addressing the India Space Congress here, he said scientists at ISRO had completed the design of the Environment Control System, which will ensure ambient living conditions for astronauts in the crew service module when they are orbiting the earth.

17 different tests are planned by ISRO next year

At least 17 different tests are planned by ISRO next year before it carries out the unmanned space flight in December next year. Prime Minister Narendra Modi had announced the Gaganyaan Mission in his Independence Day address in 2018 with a tentative target of achieving it in 2022, when the country completed 75 years of freedom from colonial rule.

First Indian astronauts are likely take flight by 2024-25

However, the Covid pandemic led to several delays and the first Indian astronauts are likely to undertake their maiden spaceflight by the end of 2024 or early 2025. Umamaheshwaran said the task of designing the crew module and environment control system was a challenging one as the astronauts should feel comfortable even during the re-entry phase, when the temperatures outside

the space capsule could reach over 2000 degrees celsius. "The crew module, where the astronauts are supposed to sit and fly, is completed and the fabrication work is on. Within six months, we will get the crew module," he said on the sidelines of the event organised by the SatCom Industry Association.

Umamaheshwaran said the environment control system was a critical element of the project as it provides ambient living conditions in the crew module. "We have to provide oxygen, remove carbon dioxide, remove humidity, maintain temperature and also ensure there is no fire hazard. This is a very complex technology which no country would give us," he said. The senior scientist said it was decided to develop the environment control system indigenously.

"We have the capability to design, so we are doing that and that only is taking a little bit of time.We have completed all the design and now is the time to prove that whatever has been designed is safe enough. That is the entire effort," Umamaheshwaran said. He said four candidates have been shortlisted to undertake the spaceflight and have already completed their initial training in Russia. The shortlisted astronauts are currently undergoing further training at the Astronaut Training Facility in Bengaluru, he said.

https://www.indiatvnews.com/news/india/isro-official-announces-time-frame-for-first-test-flight-of-gaganyaan-indian-space-research-organisation-india-s-maiden-human-space-flight-mission-2022-10-27-819274

Press Information Bureau
Government of India

Ministry of Science & Technology

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India's First Indigenous Overhauser Magnetometer may Show the way towards Reducing Costs of Sensing Experiments Essential for Geomagnetic Sampling

Indian scientists have developed an Overhauser Magnetometer, one of the most accurate magnetometers extensively used by all magnetic observatories around the world, making way for reducing the cost of sampling and sensing experiments essential for geomagnetic sampling. The sensor installed at Alibag Magnetic Observatory (MO) can absolve India's dependence on commercial OVH magnetometers for performing geomagnetic field measurements. OVH magnetometers are known for their higher accuracy, higher sensitivity, and efficient power consumption and hence find applications in all magnetic observatories worldwide as well as in international space programs. It has so far been imported for such purposes in India.

In order to reduce dependence on imports, the Indian Institute of Geomagnetism (IIG), an autonomous research institution under DST, Government of India, has developed the magnetometer as part of its technology development program. A team from IIG's instrumentation division used various spectroscopic tools and theoretical simulations to

understand the working of the OVH sensor. They further performed various control experiments, such as varying the sensor composition and examined the sensor's performance. This helped them to optimize the sensor parameters and its associated electronics, which finally led to a very efficient and stable OVH sensor. Experiments with the sensor installed at the Alibag Magnetic Observatory (MO) for geomagnetic sampling found that the sensor reproduced the geomagnetic diurnal variations accurately and precisely showed the signatures of various space weather events such as geomagnetic storms, sudden impulses, etc. The performance of this indigenously made magnetometer is at par with a commercial OVH sensor that is currently installed at the magnetic observatories of IIG. The sensor is currently being tested for its long-term stability. The group is further excited to adapt their sensor for the outer space environment to support the existing Indian space research program. In addition, the group feels that the understanding of this project, specifically the underlying mechanism of Dynamic Nuclear Polarization (DNP), would also be of potential help to develop a sensitive magnetic resonance imaging (MRI) instrument.

https://pib.gov.in/PressReleasePage.aspx?PRID=1871226