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Defence News

Future warfare course begins, to study tech changes after Op Sindoor

Source: The Tribune, Dt. 03 Feb 2026

Post-Operation Sindoor, the armed forces today started a 'future warfare course' to train how technology was impacting war-fighting and to understand the need to align the forces' requirements with domestic production of weapons and equipment. The course has participants from the three services, as well as representatives from the defence industry including startups, MSMEs, defence public sector undertaking and private players. Amongst the services participants, the seniority of the officers varies from Majors to Major Generals (and their equivalents), with the junior officers bringing their technical flair and expertise and the senior officers their operational experience and strategic knowledge.

The three-week course (from February 2 to February 25) commenced at Manekshaw Centre in New Delhi. It covers domain-specific warfare developments in military operations. This is the third-edition of the 'warfare course' and the first such event since Operation Sindoor when new technologies like drones were used in large numbers. This course features an enhanced curriculum covering specialised subjects and domain-specific warfare developments in military operations. It will aim to arrive at an erudite understanding on how war fighting is being impacted by technology, necessitating a relook at thinking, concepts, doctrines and strategies. It also caters for deeper exploration of critical topics, practical demonstrations of emerging technologies and visits to institutions of critical importance to the capabilities of the defence forces.

The course looks to align operational priorities of the armed forces with the capabilities of the indigenous defence industry. This is vital as the Union Budget yesterday focused on self-reliance. The Budget has allocated Rs 1.39 lakh crore, that is 75% of the capital acquisition for procurement through domestic industries. Such earmarking of funds, reassures domestic industry about their investment. The capital outlay for the Defence Ministry for the next fiscal is Rs 2,19,306 crore.

A diverse range of experts including veterans, serving officers, ex-ambassadors, industry experts and academic professionals will ensure that a holistic analysis of India's security challenges are debated. Additionally, experts in subjects like critical and rare earth elements, supply chain vulnerabilities and regional and global geopolitics impinging on operations in the future, expanding the number of subjects that will need to be studied and analysed by the defence forces in order to plan and conduct operations in the future.

Building on the success of the inaugural course held in September 2024, this expanded three-week programme aims to realise the vision of the Chief of the Defence Staff General Anil Chauhan to prepare officers for the complex challenges of modern warfare. It is being hosted by Headquarters Integrated Defence Staff, under the Chief of Defence Staff. Think tank Centre for Joint Warfare Studies (CENJOWS) is partnering the event.

<https://www.tribuneindia.com/news/top-headlines/future-warfare-course-starts-to-study-tech-changes-after-op-sindoor/>

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Rajnath Singh approves grant of Miniratna category-I status to YIL

Source: The Pioneer, Dt. 03 Feb 2026

Defence Minister Rajnath Singh has approved the grant of 'Miniratna' Category-I status to Yantra India Limited (YIL), a move that underscores the Government's continued commitment to the vision of Aatmanirbhar Bharat, officials said on Monday.

It is in line with the broader defence reforms, which aim to reduce import dependence, promote domestic defence production, encourage participation of Indian industry and position India as a global defence manufacturing hub, they said. It lays a strong focus on building indigenous capabilities in defence manufacturing, research and strategic technologies, the officials added.

"The Miniratna (Category-I) status empowers the Board of the YIL to incur capital expenditure on new projects, modernisation, purchase of equipment, etc., up to Rs 500 crore without Government approval. This will further empower the company to achieve an accelerated growth trajectory and new heights in defence production and exports," the defence ministry said in a statement.

The decision underscores the government's continued commitment to the vision of Aatmanirbhar Bharat, "with a strong focus on building indigenous capabilities in defence manufacturing, research and strategic technologies".

Congratulating the defence public sector undertaking (DPSU) for its transformation from a government organisation to a profit-making corporate entity in a short span of about four years, Singh expressed satisfaction over the initiatives taken by the management of the YIL to increase the turnover of the company, maximise indigenisation and meet other performance parameters for the grant of 'Miniratna' (Category-I) status.

"The YIL has achieved significant milestones after its inception, including stellar growth in sales from Rs 956.32 crore in 2021-22 (H2) to Rs 3,108.79 crore in FY 2024-25. On the export front, it has achieved a growth from NIL in FY 2021-22 (H2) to Rs 321.77 crore in FY 2024-25," the statement said. The major products of YIL include carbon fibre composites, assembly products for medium and large calibre ammunition, assembly products for armoured vehicles, assembly products for artillery guns and main battle tanks (MBTs), glass composites and aluminium alloys, it said.

The Government had corporatised the erstwhile Ordnance Factory Board (OFB) into seven new DPSUs on October 1, 2021, with a view to enhancing functional autonomy, efficiency, and promoting innovation and growth in the defence manufacturing sector.

The YIL is one of the newly formed Schedule 'A' DPSUs functioning under the administrative control of the Department of Defence Production. In May 2025, the defence minister had approved the grant of Miniratna-I Status to three of the seven DPSUs — Munitions India Limited, Armoured Vehicles Nigam Limited and India Optel Limited.

<https://dailypioneer.com/news/rajnath-singh-approves-grant-of-miniratna-category-i-status-to-yil>

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सुनिश्चित हो रक्षा व्यय की गुणवत्ता

Source: Dainik Jagran, Dt. 03 Feb 2026



हर्ष वी. पंत

रक्षा व्यय में बढ़े आवंटन के साथ भविष्य की दिशा तो स्पष्ट है, पर यदि इसे सही तरह अमल में नहीं लाया जाता तो क्षमताओं में वृद्धि की गति प्रभावित हो सकती है

आम बजट में रक्षा व्यय में बढ़ोतरी वैश्विक एवं क्षेत्रीय रणनीतिक उथल-पुथल के बीच निरंतरता का ही एक संकेत है। बजट में रक्षा मंत्रालय के लिए 7.85 लाख करोड़ रुपये का आवंटन किया गया है, जो पिछले वर्ष के 6.81 लाख करोड़ से अधिक है। इसमें से 2.19 लाख करोड़ सशस्त्र बलों के आधुनिकीकरण के लिए हैं। इसमें 63,733 करोड़ विमान और एयरो-इंजन के लिए और 25,023 करोड़ नौसेना के लिए निर्धारित किए गए हैं। शेष 5.54 लाख करोड़ राजस्व व्यय के लिए हैं। इसमें पेंशन के लिए 1.71 लाख करोड़ रुपये का प्रविधान है। स्पष्ट है कि सरकार ने रक्षा आत्मनिर्भरता के अपने दीर्घकालिक उद्देश्यों को आगे बढ़ाने का प्रयास किया है। नागरिक, प्रशिक्षण तथा अन्य विमानों के निर्माण के लिए आवश्यक घटक और कलपुर्जों को मूल सीमा शुल्क से छूट देने तथा विमान रखरखाव, मरम्मत

एवं कायाकल्प में उपयोग होने वाले कच्चे माल पर शुल्क माफ करने का निर्णय इसका संकेत है कि राजकोषीय नीति को औद्योगिक रणनीति के साथ समन्वित करने का प्रयास किया जा रहा है। ये उपाय घरेलू एयरोस्पेस निर्माण को मजबूत करने और आयात निर्भरता को कम करने के लिए हैं। विशेष रूप से रक्षा आपूर्ति श्रृंखला की प्रीमियम श्रेणी में यह बात और सटीक बैठती है।

भारत का रक्षा बजट निरंतर बढ़ने पर है, जो देश के जटिल सुरक्षा परिदृश्य के संज्ञान से प्रेरित है। ऐसा परिदृश्य जो उत्तर-पश्चिमी सीमाओं पर तनाव से लेकर हिंद-प्रशांत क्षेत्र में बढ़ती प्रतिस्पर्धा पर केंद्रित है। इसलिए पुराने सैन्य उपकरणों का आधुनिकीकरण अब विकल्प नहीं अनिवार्यता बन गया है। हमें बढ़ते आवंटन को नई तकनीकों की बढ़ती लागत जैसे तकनीकी पेच में नहीं फंसाना चाहिए। हमें बस यह सुनिश्चित करने पर ध्यान देना है जो आवंटन किया गया है वह प्रभावी ढंग से खर्च भी किया जाए। इसमें व्यय की गुणवत्ता निश्चित रूप से एक महत्वपूर्ण बिंदु है। इस दिशा में यह एक अच्छा संकेत है कि पिछले कुछ वर्षों में रक्षा बजट में पूंजीगत व्यय यानी नई तकनीकों एवं आधुनिकीकरण पर होने वाले खर्च की हिस्सेदारी बढ़ी है। वित्त वर्ष 2020 से 2025 के बीच रक्षा पूंजीगत व्यय लगभग 9.1 प्रतिशत की वार्षिक दर से बढ़ा है, जो पिछले दशक की तुलना में लगभग दोगुना हो गया है। इस क्रम में वेतन, पेंशन और रखरखाव वाले राजस्व व्यय का हिस्सा घटा है। स्पष्ट है कि पूंजीगत व्यय में बढ़ोतरी जैसा सुनियोजित कदम भविष्य की सैन्य क्षमताओं को आकार देने में



अवधेश राजपूत

महती भूमिका निभाएगा। इस प्रकार का परिवर्तन रणनीतिक रूप से आवश्यक हो गया है। यदि भारत को पारंपरिक सामरिक क्षमताओं को बढ़ाना है तो उन्नत विमानों, पनडुब्बियों, ड्रोन और नेटवर्क-केंद्रित युद्ध क्षमताओं में निवेश करना ही होगा।

यह अच्छी बात है कि पूंजीगत व्यय बढ़ा है, लेकिन यह अभी भी अपेक्षित रूप से कम है। याद रखना होगा कि वित्तीय बाधाएं, प्रतिस्पर्धी विकास प्राथमिकताएं और राजस्व व्यय का संरचनात्मक बोझ सैन्य आधुनिकीकरण की गति को सीमित करते हैं। इसे अनदेखा नहीं किया जा सकता है कि तकनीक की भूमिका निर्णायक होती जा रही है। इसलिए हमें अपने प्रयास तेज करने होंगे। खास तौर से चीन जैसे देश को देखते हुए, जो अगली पीढ़ी के प्लेटफार्मों, साइबर क्षमताओं, अंतरिक्ष परिसंपत्तियों और एआइ सक्षम प्रणालियों में भारत की तुलना में भारी-भरकम खर्च कर रहा है। समय के साथ

भारतीय सामरिक नीति-नियंत्रणों ने भी साइबर, इलेक्ट्रॉनिक युद्ध, अंतरिक्ष और ड्रोन प्रौद्योगिकियों को प्राथमिकता देना शुरू किया है, लेकिन इन क्षेत्रों के लिए बजटीय आवंटन पारंपरिक प्लेटफार्मों में निवेश की तुलना में कम ही है। यदि भारत को इस अंतर को कम करना है तो रक्षा अनुसंधान और विकास में निरंतर वृद्धि महत्वपूर्ण होगी।

हाल के वर्षों में आत्मनिर्भर भारत पहल ने भी रक्षा खर्च की संरचना को बदला है। बीते कुछ वर्षों के दौरान 70 प्रतिशत से अधिक पूंजीगत खरीद स्वदेशी स्रोतों के लिए निर्धारित की गई है, जो घरेलू निर्माण क्षमता को विकसित करने और आयात पर निर्भरता को कम करने की दिशा में दृढ़ता को दर्शाता है। इस रणनीति के अच्छे परिणाम भी मिले हैं। रक्षा उत्पादन में रिकार्ड तेजी आई है। रक्षा निर्यात भी तेजी से बढ़कर करीब 23,500 करोड़ रुपये के स्तर तक पहुंच गया है। लगभग 90 देशों को निर्यात से इसमें विविधता भी झलकती है। स्पष्ट

है कि ऐसा विकास भारत की रणनीतिक साझेदारियों को बढ़ाते हुए उसके भू-राजनीतिक कद को भी विस्तार देता है। इससे रक्षा उत्पादन में निजी क्षेत्र की भूमिका को भी मान्यता मिलती है इसके बावजूद आत्मनिर्भरता की अपनी सीमाएं हैं। खासतौर से उच्चस्तरीय और अधुनातन तकनीकों एवं हथियारों के मामले में विदेशी निर्भरता कायम है। इस अंतर को पाटने के लिए केवल नीति ही नहीं मंशा भी दिखानी होगी। इसके लिए शोध एवं विकास में निरंतर निवेश, सक्षम इकोसिस्टम और खरीद एवं बजट क्रियान्वयन में व्यापक दक्षता की आवश्यकता होगी। निरंतर बढ़ोतरी के बावजूद जीडीपी के अनुपात में हमारा रक्षा खर्च अभी भी 2.2 प्रतिशत पर अटका हुआ है। यह स्थिति अन्य वित्तीय दबावों और दूसरी प्राथमिकताओं के साथ संतुलन के दृष्टिकोण से आवश्यक समझी जा सकती है, लेकिन इस मामले में राजस्व व्यय जैसी प्रतिबद्धता खर्च में लचीलेपन की गुंजाइश को और सीमित करती है। इसलिए तात्कालिक परिचालन आवश्यकताओं और दीर्घकालिक रणनीतिक परिवर्तन के बीच संतुलन साधना भारतीय सामरिक नीति-नियंत्रणों के लिए एक बड़ी चुनौती बना हुआ है। इस कसौटी पर रक्षा बजट पारंपरिक विरोधाभासों को भी दर्शाता है, जो महत्वाकांक्षाओं और वित्तीय सीमाओं से जुड़ा है। रक्षा क्षेत्र को बढ़े आवंटन के साथ भविष्य की दिशा तो स्पष्ट है, लेकिन यदि इसे सही तरह से अमल में नहीं लाया जाता तो क्षमताओं में वृद्धि की गति प्रभावित हो सकती है।

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Science & Technology News

Budget 2026 pushes Technology-driven AI-integrated Structural Reforms to Shape India's Future, says Union Minister Dr Jitendra Singh

Source: Press Information Bureau, Dt. 02 Feb 2026

Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences, and Minister of State for PMO, Department of Atomic Energy, Department of Space, Personnel, Public Grievances and Pensions, Dr Jitendra Singh today said that the Union Budget 2026–27 pushes technology-driven AI-integrated structural reforms to shape India's future and lays down a forward-looking roadmap for the next quarter century.

DSL - DESIDOC

Addressing the media in a post-Budget interaction organised by the Ministry of Science & Technology, the Minister said the Budget may take time to be fully appreciated, but it reflects a clear, sequential vision where structural reforms are powered by cutting-edge technologies, and cutting-edge technologies are increasingly driven by AI. He said this makes the Budget inherently futuristic and places a responsibility on informed stakeholders, including the media, to communicate its long-term benefits to citizens.

Dr Jitendra Singh addressed concerns regarding benefits for the middle class, stating that the Budget's true impact lies in long-term relief from rising healthcare and living costs, rather than short-term income calculations. He said large-scale investment in biopharma, diagnostics, vaccines, and gene-based therapies would significantly reduce the financial burden on families dealing with chronic diseases such as cancer, diabetes, and metabolic disorders. Highlighting India's growing health challenges, the Minister noted that the country has over 11–12 crore diabetics, nearly 14 crore pre-diabetics, and a rapidly increasing incidence of cancer, with projections touching two million cases annually by 2030. He said affordable drugs, vaccines, and diagnostics, supported by domestic biomanufacturing, would be a major social and economic support, especially for the middle class and vulnerable sections.

Referring to the ₹10,000 crore Biopharma Shakti initiative, Dr Jitendra Singh said India has already emerged as a global bio-manufacturing hub, ranking among the top bio-economies globally and within the Indo-Pacific region. He said the new outlay will further strengthen this position by expanding capabilities in biologics, biosimilars, vaccines, medical devices, and gene-based technologies. The Minister described biotechnology as the next major industrial driver, comparable to the role played by IT in previous decades, and said the upcoming industrial revolution will be a bio-revolution, encompassing recycling, regeneration, circular economy, and advanced life-science innovations.

Dr Jitendra Singh said the Budget also addresses non-communicable diseases and mental health, areas that were neglected in earlier decades. He announced that new super-speciality academic and clinical institutes for mental health will be established in North India, ensuring wider and more equitable access to care. He also highlighted the decision to establish new institutes of Ayurveda and pharmaceutical education, saying these initiatives will strengthen traditional medicine systems while integrating them with modern research and healthcare delivery.

The Minister said the extension of customs duty exemptions on imported components for nuclear power plants till 2035 will improve project efficiency and attract credible domestic and international investment. He said this aligns with recent reforms aimed at expanding private sector participation in the nuclear ecosystem. Dr Jitendra Singh also referred to the development of rare earth corridors and critical mineral initiatives, stating these will support clean energy technologies, electronics manufacturing, and strategic industries, while reducing import dependence.

Calling the National Geospatial Mission a foundational reform, the Minister said it will play a decisive role in planned urbanisation, infrastructure design, and land management, especially as India witnesses rapid rural-to-urban migration. Implemented through the PM Gati Shakti platform, the Mission will enable evidence-based planning using satellites, drones, and advanced mapping tools. Dr Jitendra Singh highlighted the ₹20,000 crore allocation for Carbon Capture, Utilisation and Storage (CCUS) as a critical step towards industrial decarbonisation, circular economy, and environmental sustainability. He also announced structured deployment of AI in agriculture, ensuring farmers benefit from technology while being safeguarded from its unintended effects.

The Minister said, the Budget ensures inclusivity, with measures that directly benefit the poorest sections, including improved healthcare access, affordable medicines, district-level cancer care facilities, women-led entrepreneurship programmes, and livelihood generation through science-based interventions. Secretary, Department of Science & Technology, Prof. Abhay Karandikar, said the Budget places strong emphasis on science, technology, and innovation, with the term “technology” appearing repeatedly in the Finance Minister’s speech. He announced the creation of two mega science R&D infrastructure facilities, a 30-metre National Large Optical Telescope, and a National Large Solar Telescope near Pangong Lake, which will complement India’s space and solar missions and significantly enhance global scientific collaboration.

Secretary, Department of Biotechnology, Dr Rajesh S. Gokhale, said the Biopharma Shakti programme builds on the successful National Biopharma Mission and will accelerate translation of research into manufacturing. He said the initiative strengthens industry-academia partnerships, shared infrastructure, clinical trial networks, and vaccine development, while also integrating biotechnology-based carbon utilisation technologies. Secretary, Ministry of Earth Sciences, Dr M. Ravichandran, outlined key initiatives under the Blue Economy, including expansion of national waterways, coastal tourism, offshore and deep-sea fisheries, and sustainable shipping. He said new policies permitting fishing beyond territorial waters and in high seas will open significant economic opportunities while ensuring environmental responsibility.

Director General, CSIR and Secretary, DSIR, Dr N. Kalaiselvi, said CSIR will play a central role across multiple Budget initiatives, including CCUS, semiconductors, critical minerals, rare earth magnets, clean energy, and advanced manufacturing. She said CSIR laboratories have been designated as centres of excellence for critical metals and minerals, aligning national research capabilities with industrial and strategic needs. Concluding the interaction, Dr Jitendra Singh said the Budget reflects a mission-oriented approach, where research, manufacturing and deployment move together. He said science-led reforms announced after the Budget underline India’s readiness to compete in technology-intensive global sectors, while ensuring that growth remains inclusive, sustainable, and citizen-centric.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2222204®=3&lang=1>

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Digantara partners Singapore defence arm on space safety

Source: The Pioneer, Dt. 03 Feb 2026

India’s Digantara Industries has joined hands with Singapore’s defence arm to develop tools for space situational awareness and also to protect their national satellites from collision with space debris. Bengaluru-based Digantara Industries claimed it was the first time that the defence arm of Singapore was signing an agreement with an Indian space-tech company for space situational awareness.

According to the agreement, Digantara and Singapore’s Defence Science and Technology Agency (DSTA) will co-develop tools in the area of Space Situational Awareness (SSA) in support of the National Space Agency of Singapore. “The most important thing is that we provide them sovereign control to the solutions we build for them, which means the Singapore Government can locally deploy and use our solutions to achieve their space domain awareness operations or needs that can be both for operations of satellites,” Anirudh Sharma, founder and CEO at Digantara Industries, told PTI.

The partnership was announced on the sidelines of the Space Summit 2026 in Singapore on Monday. Sharma said his company would provide services to the DSTA regarding flight dynamics, and access to conjunction screening in case of a Singapore satellite approaching an orbiting piece of debris. "This service of ours will help them get the alerts and do sustainable space operations without having to worry about collisions in space," Sharma said. The agreement also includes integrating Digantara's sensor data with AI-driven analytics.

"The Singapore Government is very keen on exploring how we do space-based Space Situational Awareness and also being part of one of our upcoming missions where they'll be involved in assembly integration and testing of one of these space-based sensors that eventually will be part of Singapore's broader space strategy," Sharma said. He added that Digantara views the opportunity in Singapore as a foothold to expand operations in the Asia-Pacific region. "Working with the Singapore Government will also enable us to access other Asian markets like South Korea, Malaysia, Thailand and other countries. So, I think that is a good gateway for us to expand as a company to the broader Asia-Pacific," Sharma said.

Leveraging Digantara's expertise in space and ground-based sensing infrastructure, both parties will focus on the development, testing and evaluation of software applications that enhance the accuracy and effectiveness of satellite tracking, a statement from Digantara said. "The collaboration aims to provide a more comprehensive view of Singapore's satellites that supports the safety and long-term operability in an increasingly congested orbital environment," it said.

<https://dailypioneer.com/news/digantara-partners-singapore-defence-arm-on-space-safety>

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Indian-origin scientist wins Crafoord Prize in Geosciences

Source: Hindustan Times, Dt. 03 Feb 2026

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HOUSTON: Indian-origin climate scientist Veerabhadran Ramanathan has been awarded the 2026 Crafoord Prize in Geosciences by the Royal Swedish Academy of Sciences.

Often described as the "Nobel of Geosciences," the prize recognises Ramanathan's decades of research on super-pollutants and atmospheric brown clouds, which have reshaped understanding of global warming.

Ramanathan, 82, made a landmark discovery in 1975 while working at NASA: chlorofluorocarbons (CFCs), widely used in aerosols and refrigeration, trap heat in the atmosphere up to 10,000 times more effectively than carbon dioxide.

"Until 1975, we thought global warming was mainly from CO₂. I was shocked at the capacity of



Veerabhadran Ramanathan

technology and human beings to change the environment," Ramanathan told the Royal Swedish Academy of Sciences.

Born in Madurai and raised in Chennai, Ramanathan began his career as an engineer in a refrigerator factory in Secunderabad, where he first handled CFCs.

He later earned degrees from Annamalai University and the Indian Institute of Science.

His Indian roots informed his work in the Indian Ocean Exper-

iment (INDOEX), which identified atmospheric brown clouds over South Asia.

The study linked air pollution to a weakened Indian Monsoon and accelerated melting of Himalayan glaciers.

Now, a Distinguished Professor Emeritus at the Scripps Institution of Oceanography, University of California, San Diego, he has also advised global leaders and the Vatican on climate ethics.

The Crafoord Prize carries a cash award of 8 million Swedish kronor (approximately \$900,000) and a gold medal. The award will be presented during Crafoord Days in Stockholm and Lund in May 2026.

Ramanathan's work underpins key international treaties, including the Montreal Protocol, which has prevented millions of tons of harmful emissions from entering the atmosphere.

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