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DARE TO DREAM 5.0: CALLING INNOVATORS TO SHAPE THE FUTURE OF DEFENCE TECHNOLOGY

LAUNCH OF

DARE TO DREAM 5.0

BY

SHRI RAJNATH SINGH

HON'BLE RAKSHA MANTRI



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DARE TO DREAM 5.0: CALLING INNOVATORS TO SHAPE THE FUTURE OF DEFENCE TECHNOLOGY

*"Govt to provide full support to the private sector in taking lead in the field of defence and making India an innovation and technology hub",
Raksha Mantri*

Hon'ble Raksha Mantri Shri Rajnath Singh has called upon the private sector to move forward from 'participation' to 'taking lead' in the defence sector, assuring the government's full support to make India an innovation and technology hub and one of the strongest countries in the world. He was addressing scientists, industry leaders, academia, start-ups, MSMEs, and young entrepreneurs during Twaral, a DRDO-Industry Workshop on Defence Technology Acceleration organised at DRDO Bhawan in New Delhi on 18 October 2024.

Sharing insights on the transformation of the defence sector in the recent past, Raksha Mantri stated that, today, technology has transformed conventional warfare into unconventional warfare. "New dimensions have been added to modern-day warfare, such as drones, cyber warfare, bioweapons, and space defence. In this transformative phase, R&D in defence will definitely make the defence sector stronger. It is heartening to witness our scientists, industrialists, academia, start-ups, MSMEs, and young entrepreneurs working together in this endeavor. It is time for the private sector to take lead, as it has the ability to absorb rapid changes

and create new innovations," he said.

Shri Rajnath Singh termed the adoption of unconventional ideas not yet known to the world as the only way to progress in unconventional warfare. Recognizing the challenge, he declared that Prime Minister Shri Narendra Modi's government will persist in offering all essential assistance to the youth, scientists, industrialists, and MSMEs in this endeavor.

Raksha Mantri reiterated the government's commitment to make the defence sector more innovative and technology-oriented. "The Technology

Development Fund (TDF) scheme is providing up to 90% of the total project cost as grant support to eligible industries," he said, highlighting the consistent efforts made by DRDO to strengthen the R&D environment and promote scientific temperament. The total support is up to Rs 50 crore, a good amount for any MSME and start-up to invest in defence R&D. Since its launch six years ago, it has sanctioned 79 projects, successfully developing technology in 18 of them.

As part of the event, Shri Rajnath Singh launched 'Dare to Dream 5.0' to encourage the next generation of innovators and





start-ups to come forward with transformative ideas for defence applications. The fifth edition of DRDO's innovation contest aims to generate cutting-edge solutions for India to progress further in its pursuit to achieve 'Aatmanirbharta' in defence technologies.

Raksha Mantri also felicitated the winners of 'Dare to Dream 4.0', recognising individual innovators, start-ups, and MSMEs for disruptive solutions and innovations in the fields of countermeasures for drones and swarms of drones, advanced acoustic systems to locate gunfire, directed energy technologies, cognitive listening devices, target seeking and proximity sensing, free-space laser communication systems, and multi-terrain multi-utility robots, among others.

Shri Rajnath Singh described the challenges as a testament to the commitment of the industrial ecosystem of the country to protect the future of the defence sector. "Like our brave soldiers, scientists, industry leaders, academia, and start-ups, MSMEs and entrepreneurs too are the warriors of the country, prepared to complete every assigned task," he said.

Raksha Mantri laid emphasis on the need to achieve advancements in both incremental and disruptive technologies within the defence sector. The solutions to challenges obtained through initiatives such as 'Dare to Dream' bridge the

critical gap between the two types of technologies, he said. He urged scientists, start-ups, and young entrepreneurs to think creatively and develop the latest innovations, making it their habit to embrace and overcome challenges.

Shri Rajnath Singh exhorted the private sector to move in line with the unprecedented speed with which the technological changes are taking place

cutting-edge technology, and for the creation of a comprehensive scanning system within the scheme to prevent the duplication of technologies.

Deep-Tech Challenges Several challenges on disruptive, emerging, enabling, and pioneering technologies (Deep-Tech) were also launched to drive major advancements in areas critical to the country's defence infrastructure. The focus on Deep-Tech emphasises the need for India to develop and harness breakthrough technologies to stay at the forefront of defence innovation. The challenges are:

- Compact electromechanical actuators;
- Development of indigenous thrusters for Yard Craft (Indian Navy);
- Development of high-purity silicon carbide source powder for the bulk growth of SiC single crystal;
- Deep-Tech for HPM Counter Measures and Protection;
- Development of a Digital Twin Framework for Aero Gas Turbine Engine Health & Usage Monitoring.

Tech handed over to end-users

In the presence of Shri Rajnath Singh, the users, including DRDO and the Armed Forces, received several cutting-edge indigenous technologies developed under the TDF scheme. These innovations, created by startups and MSMEs with DRDO, mark a significant step in the country's journey towards



across the globe. He urged them to timely assess technologies to prevent their obsolescence upon implementation. He also advocated for the creation of projects under TDF that utilize



self-reliance, enhancing national security. The technologies are:

- NewSpace Research and Technology Pvt Ltd. is using an autonomous drone as a first responder for a search and report mission in an enclosed or indoor environment, according to CAIR, Bengaluru.
- Simulator for Unmanned Ground, Marine (Sea Surface and Underwater) and Aerial Vehicles by Combat Robotics India Pvt Ltd to CAIR, Bengaluru.
- Data Assessment Active Learning and Believability for Visual Data to CAIR, DRDO & Aero Gas Turbine Engine Health Monitoring System by Chistats Labs Pvt Ltd to GTRE, DRDO.
- Design and Development of Water Tight/Gas Tight and Fire Class EMI/EMC compliant doors and hatches for Naval Ships by Valdel Advanced Technologies Pvt Ltd. to the Indian Navy.
- Fuel System Temperature Transducer for Aircraft Application by Tejase

Aeroscience Private Ltd. Mumbai to ADA, Bengaluru.

Twaral

The DRDO Industry Workshop on Defence Technology Acceleration brought all the stakeholders in the innovation ecosystem together to explore strategies for expediting the development of critical defence technologies.

The workshop focused on bridging the gap between research efforts and real-world application, emphasizing the importance of collaboration across sectors. Setting the foundation for future innovations, the workshop underscored the critical role of DeepTech (R&D) in advancing national security capabilities.

The amended Standard Operating Procedures for TDF, aimed at simplifying the process for start-ups and MSMEs to collaborate with DRDO, was also released. The updated procedures aim to promote a more transparent and streamlined approach for innovators, facilitating easier access to opportunities for contributing to national defence projects. Two in-depth panel

discussions were also held. The first, on Critical and Emerging Tech Collaboration, explored the potential for international R&D partnerships and the sharing of intellectual property in military technology.

The second discussion addressed the theme of self-reliance in defence technology and manufacturing, focusing on the need for innovation and strong R&D to build a sustainable and robust domestic ecosystem.

Dr Samir V Kamat, Secretary, DD R&D & Chairman DRDO praised the winners of 'Dare to Dream 4.0', emphasizing the importance of fostering homegrown talent in building a stronger and more self-reliant defence sector.

The winners' contributions serve as a testament to India's burgeoning innovation ecosystem, he said.

Shri Sanjeev Kumar, Secretary (Defence Production); Lt Gen JP Mathew, Chief of Integrated Defence Staff, and other senior civil and military officials of the Ministry of Defence were present on the occasion.





DRDO SUCCESSFULLY FLIGHT-TESTS 4TH GENERATION VERY SHORT-RANGE AIR DEFENCE SYSTEM

Defence Research and Development Organisation (DRDO) successfully conducted three flight-tests of the 4th Generation, technically advanced miniaturised Very Short-Range Air Defence System (VSHORADS) at the Pokhran Field Firing Ranges in Rajasthan during 3-4 October 2024. The tests were conducted against high-speed targets, showcasing the crucial parameters of maximum range and maximum altitude interception. These development trials showcased the repeatability of the hit-to-kill capability of the weapon system in various target engagement scenarios covering approaching,

receding, and crossing modes.

The development of VSHORADS missiles has been completed, and two production agencies have been engaged in the Development/Production Partner (DcPP) mode. In these trials, the missiles realised through DcPPs have been successfully used, thus paving the way for early User trials and production in a short time span in line with Prime Minister Shri Narendra Modi's government's vision of 'Aatmanirbhar Bharat'.

Research Centre Imarat (RCI), in collaboration with other DRDO laboratories and DcPPs, has indigenously designed and developed VSHORADS, a Man

Portable Air Defence System. The three Services have been associated with the project right from the beginning and participated during the developmental trials.

The Hon'ble Raksha Mantri Shri Rajnath Singh has congratulated DRDO, the Armed Forces, and the industry involved in the successful development trials. This new missile equipped with modern technologies will give the Armed Forces a further technological boost against aerial threats, he said.

Dr Samir V Kamat, Secretary, DD R&D & Chairman DRDO, also congratulated the DRDO team, industry partners, and users for the successful flight tests.





HANDING OVER OF PSYCHOLOGICAL SCREENING TOOL (PsySHOT) TO INFANTRY SCHOOL, MHOW

Dr Arunima Gupta, Director, Defence Institute of Psychological Research (DIPR), Delhi, handed over a Psychological Screening Tool (PsySHOT), to Lt Gen Gajendra Joshi, AVSM, SM, Commandant of the Infantry School, Mhow, on 3 October 2024.

PsySHOT will aid in identifying the right fit for specialised roles in infantry and was conceptualised, scientifically validated through a collaborative process involving subject matter experts, field trials, and on-site evaluations with support from Infantry School,



Mhow, and Army Training Command (ARTRAC).

PROJECT SHYEN S-22 ESM SYSTEM FLAG OFF

As part of Project SHYEN S-22, Defence Electronics Research Laboratory (DLRL), Hyderabad, has developed an advanced, indigenous ESM system for meeting the mid-life upgrade requirements of the Dornier Platform for the Indian Navy.

The system plays a crucial role in ensuring successful installation on a small platform such as Dornier, while also meeting the high accuracy requirements.

Realizing an ESM system meeting the airborne qualification standards is a challenging task, and the project has completed the airworthiness lifecycle of development, qualification, integration, and testing in a very short timeline.

On September 27, 2024, the ESM system received approval for installation, development,

and user flight trials following the successful completion of user laboratories evaluation trials.





DRDO PARTICIPATION IN SHINING UTTAR PRADESH-2024 AT VARANASI

The Mega Exhibition on Rural Technologies and Aatma Nirbhar Bharat '2nd Shining Uttar Pradesh-2024' was organised by Achievers Foundation during 27-29 September 2024 at Varanasi, Uttar Pradesh. The Defence Materials and Stores Research and Development Establishment (DMSRDE), Kanpur, was the nodal laboratory for organizing the DRDO exhibition at the event. Various products developed by DMSRDE, DRDE, DTTC, ADRDE, SSPL, and ARMREB were displayed in the DRDO pavilion during the exhibition. Dr Daya Shankar Mishra, Hon'ble State Minister (I/C), Deptt. of Ayush, Food Safety and Drug Administration, Govt. of Uttar

Pradesh, was the Chief Guest and inaugurated the. During the three days of exhibition, the DRDO stalls attracted numerous visitors from industry, academic institutions,

and R&D organisations. DRDO Pavilion won the 'Best Stall' award during the event. Dr Gobardhan Lal, Sc 'F' was the nodal officer for the event.



DRDO PARTICIPATION IN LAND FORCE 2024

A delegation from DRDO lead by Shri AS Kumaran, Sc 'G', (CABS), with four members, Shri Gampala Srinivas, Sc 'F' (DRDL), Shri Rama Krishna Vanarasi, Sc 'F' (NSTL), Shri Sathish Kumar Kannan, Sc 'F' (CVRDE), and Shri Shyam Sundar Meena, Sc 'E' (DPI, DRDO HQrs), participated in showcasing the products of DRDO at 'Land Force 2024', during 11-13 September 2024, a biennial event and Australia's biggest International Defence Industry Exposition held at Melbourne, Australia. The team displayed flag ship technologies of DRDO as part of the Indian

Pavilion. Hon'ble Raksha Rajya Mantri Shri Sanjay Seth, inaugurated the Indian Pavilion and DRDO stall at the exhibition.





DRDO & IIT DELHI DEVELOP ABHED LIGHT WEIGHT BULLET PROOF JACKETS

The Defence Research & Development Organization (DRDO), along with researchers from the Indian Institute of Technology (IIT)-Delhi, developed lightweight bulletproof jackets named ABHED, Advanced Ballistics for High Energy Defeat. The DRDO Industry Academia Centre of Excellence (DIA-CoE) at IIT, Delhi is responsible for developing the jackets.

These jackets have been created from polymers and indigenous boron carbide ceramic material. The design configuration is based on characterisation of various materials at high strain rates, followed by appropriate modeling and simulation in collaboration with DRDO.

The armor plates for the jackets have passed all necessary R&D trials as per the protocols. The jackets meet the highest threat levels and are lighter than the maximum weight limits stipulated in the respective General Staff Qualitative Requirements of the Indian Army. With a minimum

possible weight of 8.2 kg and 9.5 kg for different BIS levels, these modular-design jackets with front and rear armor provide 3600 protection.

The selection-criteria matrix shortlisted some Indian industries for technology transfer and handholding. The Center is ready to transfer the technology to three industries.

Congratulating DIA-CoE on the achievement, Dr Samir V Kamat, Secretary, Department of Defence R&D & Chairman DRDO stated that the Lightweight Bulletproof Jacket exemplifies the effective ecosystem of successful defence R&D by DRDO, academia, and industry.

The DIA-CoE was formed by modifying the Joint Advanced Technology Center of DRDO at IIT Delhi in 2022 to involve industry and academia for defence R&D. It has been actively pursuing various projects on advanced technologies, involving DRDO scientists, academic researchers, and industry partners.



RAISING DAY CELEBRATIONS

DESIDOC, Delhi

On 4 October 2024, the Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, enthusiastically commemorated its 54th Raising Day. The Chief Guest for the event was Smt U Jeya Santhi, DS & DG (HR). Attendees

included prominent scientists, directors from DRDO HQrs and sister laboratories in Metcalfe House and Timarpur Complex, as well as invitees from Delhi-based establishments and DESIDOC staff.

In his welcome speech, Dr

K Nageswara Rao, Director, DESIDOC, outlined the successes of the organization's many initiatives over the last year. In addition to informing the distinguished audience about DESIDOC's most recent accomplishments and forthcoming endeavors, he



stressed that the organization will keep serving the DRDO scientific community via its tireless efforts and inventive approach.

DS & DG (HR) recognized DESIDOC's contributions over the years and valued the vast scope of DESIDOC's activities. Her remarks highlighted the importance of DESIDOC as a DRDO central library and her appreciation for the organization's many initiatives and services.

In a video message, Dr Samir V Kamat, Secretary DD R&D & Chairman DRDO, also spoke to the distinguished audience. During his speech, he commended DESIDOC on the outstanding support it has given to DRDO through its publishing, electronic journal, digital library, and network services.

In addition to the newest issues of various publications, dignitaries released a number of books and monographs, such as the DRDO Monograph on "Himalayas to Hyderabad: A Journey from Border Roads to Missiles, Microdrones and



Cybrogs", authored by Dr VJ Sundaram and Shri Scharada D u b e y ; a n d books on Key Achievements of DRDO, and Technology Achievements of DRDO.

The commendation batch was distributed to the employees who had outstanding performance throughout the year by DS & DG (HR). Employees who have put in 25 years of devoted service



to DRDO were given mementos as a token of appreciation.

DESIDOC displayed a number of DRDO publications at the occasion.

Dignitaries, including the Chief Guest, visited the display area to peruse the many publications put out by DESIDOC on behalf of DRDO.

Dr Yousuf Ansari, Sc 'G', put forward the vote of thanks.

DIPR, Delhi

Marking the glorious occasion, the Defence Institute of Psychological Research (DIPR), Delhi, celebrated its 76th Raising Day on August 29, 2024.

Dr UK Singh, DS & DG (LS), was the Chief Guest of the event. The event was also graced by Dr Sudhir Chandna, Director, INMAS, Dr Rajeev Varshney, Director, DIPAS, Directors from O/o DG (LS), senior scientists, service officers, former scientists, other distinguished guests, and the DIPR. Dr Arunima Gupta,





Director, DIPR, welcomed the dignitaries, highlighted the major achievements, and provided a snapshot of the various R&D initiatives presently being undertaken by the laboratory in the areas of selection, training, placement, screening for specialised roles, and rendering

psychological support to the Indian Armed Forces and Central Armed Police Forces.

Dr UK Singh congratulated the DIPR family for their unstinted efforts over the decades. He urged the scientific fraternity to harness the potential of academia and industry to strengthen

Aatmanirbharta to accelerate the development of futuristic technologies. As part of the event, he also inaugurated the 'Karmana Bhoomi' Group Testing Training Area. The children of the DIPR fraternity were complimented and certificates conferred on them as a welfare measure.

92ND ANNIVERSARY OF THE INDIAN AIR FORCE

On the momentous occasion of the 92nd anniversary of the Indian Air Force, IAFPMT (ECS Cluster) organized an event at Combat Aircraft Systems Development & Integration Centre (CASDIC), Bengaluru, on 8 October 24. The event was graced by Shri Durga Prasad, Centre Head CASDIC, and various functionaries of CASDIC, LRDE, and IAF veterans. AVM Anjan Bhadra VM, Director IAFPMT (ECS Cluster), assured the gathering of the IAF's commitment and resolve to collaborate with DRDO to successfully implement the



cluster's initiatives towards self-sufficiency and the development of in-house technologies.

He also stated that, "our dependence on foreign OEMs has

reduced due to active support from various DRDO laboratories, and we have truly embarked on the path of Atmanirbhar Bharat".

FELICITATION OF IRDE BY THE BUREAU OF INDIAN STANDARDS

The Bureau of Indian Standards (BIS) has felicitated Instruments Research & Development Establishment (IRDE), Dehradun, in a seminar on 'Energy Efficiency through Standards' at Haridwar, Uttarakhand, on 1 October 2024. IRDE received the honor for its long association and commitment to quality, as evidenced by its ISO 9001:2008, ISO 9001:2015,

and ISO 27001:2022 certifications. Shri JP Singh, Sc 'G' & Management Representative, and Dr Vaibhav Gupta, Technical Officer 'C' & Deputy Management Representative, received the honor on behalf of the Director, IRDE.





CELEBRATION OF VISHWAKARMA PUJA

DESIDOC, Delhi

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, celebrated Vishwakarma Puja on 17 September 2024. People worship Lord Vishwakarma, also known as the chief architect of the world or the divine architect, on this day. The festival is celebrated in factories, industries, and shops to get the blessings of Lord Vishwakarma. On the occasion, Dr K Nageswara Rao, Director, DESIDOC, performed the puja. The prasad was also distributed and all the officers and staff participated in the puja.



IRDE, Dehradun

The Instruments Research & Development Establishment (IRDE), Dehradun, celebrated Vishwakarma Puja with full devotion on 17 September 2024. Dr Ajay Kumar, OS & Director

IRDE, performed Vishwakarma Puja with full fervor. On this occasion, Dr Ajay Kumar remembered Lord Vishwakarma and wished for his blessings for a successful tomorrow. The 'Prasad' was distributed after the puja. All IRDE employees witnessed the puja.



OBSERVANCE OF SWACHHTA HI SEVA

DLRL, Hyderabad

The Swachhta Hi Seva (SHS 2024) campaign was observed in Defence Electronics Research Laboratory (DLRL), Hyderabad, during 14 September 2024 to 1 October 2024 with the theme of 'Swabhav Swachhata – Sanskar Swachhata with Swatch Bharat Diwas on 2nd October. As part of the celebrations, DLRL conducted various events, including the adoption of the Swachhata Pledge by all employees. Swachhata Cyclothan was organized where 40 employees participated with the aim to advocate the importance of swachhata to the general public. Besides wall painting and beautification activities, essay writing competitions were

organised at Defence Lab School. The laboratory also organised preventive health checks for sanitary workers and also established a selfie point for the general public to take photographs depicting the swachhata slogans.



DMSRDE, Kanpur

Defence Materials and

Stores Research & Development Establishment (DMSRDE), Kanpur, conducted the SHS 2024 Campaign during 17 September to 1 October 2024. In this context, various events and activities were conducted under the able guidance of Dr Mayank Dwivedi, OS & Director, DMSRDE that includes, Swachhata Pledge; Swachhata Cyclothan Mega Rally; DMSRDE boundary wall painting & beautification; installation of selfie points at the DMSRDE gate; Slogan Writing/Poem/Essay/Painting/Poster Competition; and Swachhata ki Paathshala at Cantonment Board Silver Oak School, Kanpur Cantt. The event also includes preventive



health check-up of all sanitation workers and distribution of PPE kits and safety gears to all sanitation workers. The event was coordinated by Shri Shilendra Kumar, Sc 'G' and Dr Sunil Kumar, Sc 'D'.



MTRDC, Bengaluru

The SHS 2024 campaign was observed during 14 September 2024 to 1 October 2024 at the Microwave Tube Research & Development Centre (MTRDC), Bengaluru, with the theme 'Swabhav Sachhata Sanskar Swachhata'. The MTRDC implemented the various activities as part of the campaign. The plantation drive was promoted under the tagline 'Ek Ped Maa Ke Naam' at the Centre. A basic health checkup for all the conservation staff of MTRDC was carried out, and sample collection and diagnostic tests like ECG, etc. were carried out. A doctor consultation programme along with the medical reports was held, and two young doctors from the MTRDC family, Dr Arghadeep and Dr Ritika Agrawal, visited for the consultation program.

The Swachhata pledge was administered by Dr SK Datta, OS & Centre Head, and all officers and staff of MTRC participated in the event enthusiastically.



NMRL, Ambernath

The SHS 2024, a cleanliness drive, was organized at the Naval Materials Research Laboratory (NMRL), Ambernath, during the 17 September 2024 to 1 October 2024. The NMRL organized a series of events that emphasized cleanliness and the month of Shramadan. Shri PT Rojatkar, OS & Director NMRL, took a pledge alongside NMRL employees on SHS, and senior scientists from NMRL planted trees on the NMRL campus.

A selfie point was installed outside the main gate of NMRL for encouraging the public to follow cleanliness. As part of 'Shramdan', the NMRL team cleared wild grass from the areas in the Technical I-Block of NMRL. The NMRL team arranged a free preventive health checkup for Swachhata Mitra and their families, and organized an essay competition for schoolchildren from fifteen nearby schools, in which 300 students participated. The laboratory also participated in Swachhata Exhibition 2024, held



during 30 September 2024 to 1 October 2024 at DRDO Bhawan, New Delhi, under the SHS 2024 Campaign.

NSTL, Visakhapatnam

The SHS 2024 campaign was observed in Naval Science & Technological Laboratory (NSTL), Visakhapatnam, during 17 September 2024 to 1 October 2024. Dr Abraham Varughese, OS & Director, NSTL, and Dr HN Das, Sc 'H' & Chairman, Works Committee, urged employees and their family members to participate voluntarily in the ongoing Swachhata activities. NSTL launched SHS 2024 with the Swachhata Pledge, followed by a plantation drive across all the buildings in the technical area. To promote fitness and cleanliness simultaneously, NSTL organized the Swachhata Run, where more than 100 people participated with a lot of enthusiasm and cleaned the surroundings in about a one-kilometer range.

To benefit sanitation workers and their families, NSTL organized Swachhata Shivar and preventive health checkups. Sanitation workers received PPE kits and received detailed instructions on how to protect themselves from occupational hazards. Dr Abraham Varughese, Director, NSTL, appreciated the overwhelming response to the Swachhata call by the NSTL fraternity.





OBSERVANCE OF VIGILANCE AWARENESS WEEK-2024 AT DGRE

Defence Geoinformatics Research Establishment (DGRE), Chandigarh, observed Vigilance Awareness Week during 8-10 October 2024 under 'Capacity Building Programme' with theme 'Culture of Integrity for Nations Prosperity'. In-house detailed interactive sessions on 'Ethics and Governance, Central Civil Services (CCS) Rules, 1964, and procurement procedures in DRDO, including GeM, Cyber Hygiene, and Security' were conducted for DGRE officials.



USER AWARENESS PROGRAMME OF DESIDOC SERVICES AT IRDE

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi, organised a User Awareness Programme on 'Effective Utilization of Electronic Resources and Writing High Quality Technical Papers' at the Instrumentation Research & Development Establishment (IRDE), Dehradun, on 27 September 2024.

Dr Ajay Kumar, OS & Director IRDE, welcomed Dr K Nageswara Rao, Director DESIDOC. In his inaugural speech, the Director, IRDE provided a brief overview of the program's purpose. He appreciated the efforts of DESIDOC in providing the information services to the scientific community of DRDO.

He requested that all the

scientists and technical staff of IRDE utilize the services provided by DESIDOC.

Dr Rao delivered a lecture on 'e-resources subscribed under the DRDO Consortium, DRDO e-Library Platform, Jane's Database, and DRDO Digital Library Software'.

He also gave a live demonstration of the DRDO Digital Library Software, available on DRDO Intranet. Shri Sudhanshu Bhushan, Sc 'F', DESIDOC, delivered a lecture on the topic 'Writing High Quality Technical Papers, DRDO Journals, DRDO Monographs,

and Demonstration of Scopus Database.

Shri JP Singh, Sc 'G' & Group Director, Knowledge Centre, IRDE, proposed the vote of thanks. Shri Ashish Kumar Bhuriya, Sc 'F', IRDE, coordinated the event.





SYMPOSIUM ON ELECTRONIC WARFARE MODELLING AND SIMULATION BY IDST AT DLRL, HYDERABAD

Institute of Defence Scientists and Technologists (IDST), Hyderabad, conducted a one-day symposium on 'Electronic Warfare Modeling and Simulation' on 26 September 2024 at Defence Electronics Research Laboratory (DLRL), Hyderabad. Dr M Chakravarthy, OS & Officiating Director, DLRL, was the Chief Guest for the occasion. Mr Atul Barker, Head, Ansys Aerospace & Defence spoke on 'Electronic Warfare: Future and Advancements.' Later speakers from defence industry made presentations and talked over various topics, including antenna performance prediction, radar predictions (range), Doppler transmitter filter design, and cable harness. Speakers discussed topics such as lightning strikes on aircraft,

the implementation of Ansys Artificial Intelligence and Machine Learning, and STK-Modeling and simulating complex systems in their operational environment. Eighty-five scientists from DLRL,

DRDL, RCI, ASL, DMRL, CHES, and DSP attended the symposium and benefited from the lectures and interactive sessions. The symposium concluded with a vote of thanks from Secretary, IDST.



COURSE ON FOUNDATION OF KALMAN FILTERING FOR TARGET TRACKING BY IRDE

Instruments Research & Development Establishment (IRDE), Dehradun, organised a five-day course on 'Foundation of Kalman Filtering for Target Tracking' during 2-6 September 2024. Prof. Naren Naik from IIT Kanpur and his team conducted the course. Thirteen scientists from IRDE attended the course.





The course covered the mathematical basis of Kalman filtering and tuning of Kalman filters. The course covered advanced topics such as particle filtering and deep learning-based

Kalman filters. The course also included practical sessions for implementing Kalman Filter Algorithms from First Principles via representative tutorials. Dr Ajay Kumar, OS & Director

IRDE, presented a memento to Prof. Naik. He also thanked Prof. Naik for conducting such an informative course at IRDE. Dr G Unnikrishnan, Sc 'F', IRDE, was the course coordinator.

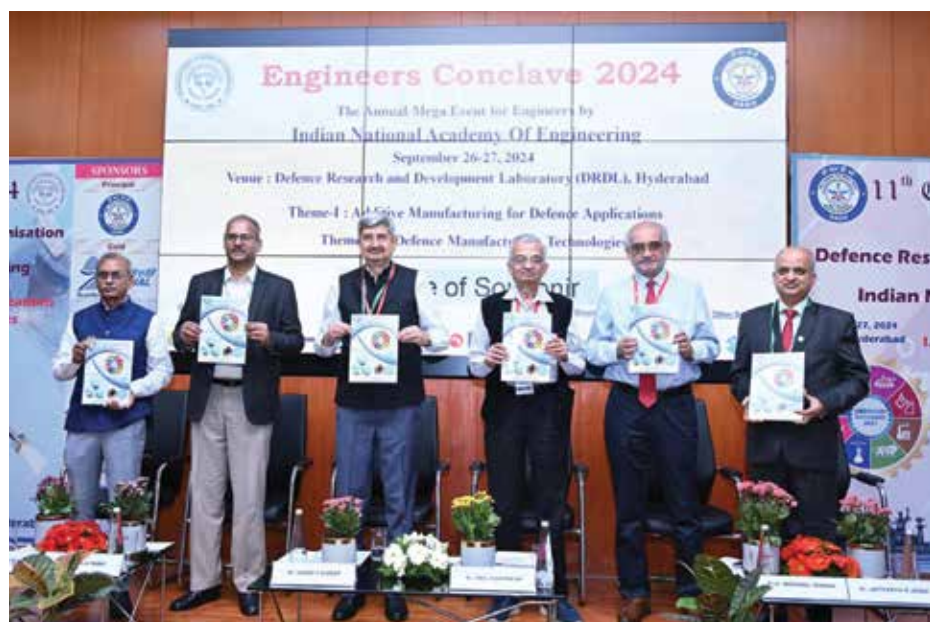
DRDO & INAE ORGANISED 11TH ENGINEERS CONCLAVE IN HYDERABAD

The 11th Engineers Conclave, jointly organised by DRDO and Indian National Academy of Engineering (INAE) in Hyderabad, commenced on 26 September 2024.

The aim of the two-day annual conclave was to deliberate on two strategic priorities, i.e., 'Additive Manufacturing for Defence Applications' and 'Defence Manufacturing Technologies'.

The event held at Defence Research & Development Laboratory (DRDL), Hyderabad, brought together engineers, scientists, academicians, and industry leaders to discuss emerging technologies and advancements in indigenization.

The conclave was inaugurated by the Chief Guest, Dr Anil Kakodkar, former Chairman,



Atomic Energy Commission, and Dr Samir V Kamat, Guest of Honour, Secretary Department of Defence R&D & Chairman DRDO. Shri GA Srinivasa Murthy,

Director, DRDL, Hyderabad, Shri U Raja Babu, DG (MSS), and INAE President Prof. Indranil Manna also addressed the gathering.

51ST NATIONAL SYMPOSIUM ON ACOUSTICS AT NSTL

Naval Science & Technological Laboratory (NSTL), Visakhapatnam, organised the 51st National Symposium on Acoustics-2024 (NSA-2024) during 27-28 September 2024. In

his address, Dr Y Sreenivas Rao, DG (NS&M), emphasised that one of the most challenging issues being faced today is to protect our coast from attacks by adversaries and same is to be addressed by

acoustic fraternity. Dr Manu Korulla, Guest of Honour, DG (R&M), emphasized the need to curb the menace of noise pollution to safeguard our environment.

Dr Abraham Varughese, OS



& Director NSTL informed the audience about NSTL's long history of research in the field of acoustics. Dr DK Aswal, President of Acoustical Society of India explained the role of the Acoustics Society of India. He brought out that meta-materials, quantum technologies and artificial intelligence may be leveraged to enhance effectiveness of acoustic research. Shri PVS Ganesh Kumar, Organising Chair of the Symposium reminded that ASI had its genesis at Visakhapatnam in 1971 and had grown to 1000 member Society today. He recalled the long association of NSTL with ASI.



ARMAMENT RESEARCH BOARD CELEBRATES ARMREB@300 EVENT

Armament Research Board (ARMREB) celebrated its sanction of 300th Project to academia in armament technologies by organizing ARMREB@300 event at Metcalfe House, Delhi on 16 October 2024. Padma Shri Prof. Sanjay Govind Dhande, Chairman, ARMREB highlighted that ARMREB has played an instrumental role in harnessing knowledge and talent in universities, academic institutes and research laboratories for meeting the defence needs of the country. A total of 300 no. of projects have been sanctioned through its six research panels to increase the understanding in the area of basic research, modeling, and simulation, new energetic materials, sensors, blast wave, combustion studies, and safety test and evaluation of armament systems.

Shri Ashish Jauhari, Member Secretary, ARMREB, brought out that the academicians and DRDO domain scientists are the backbone of the sponsored research and have made outstanding contribution in the field of armament research. Prof. IA Palani (IIT Indore), Prof. Prasanna Gandhi (IIT Bombay), Prof. Kirti Bhushan Mishra (IIT Roorkee), Prof. Shaibal Banerjee (DIAT, Pune), Prof. Vijay Hiwarkar (DIAT, Pune), and Prof. Rajeev

Mehta (Thapar Institute, Patiala) presented their achievements on niche technologies in the area of sensors, mechatronics, additive manufacturing, high energy and impact absorbing materials.

Prof. Dhande, Prof. Prateek Kishore, DS&DG (ACE), Dr Subrata Rakshit, DS&DG (TM), Dr Narendra Kumar Arya, OS & Director ER&IPR, and Shri Jauhari honored the selected academicians and DRDO scientists.





HR COORDINATORS CONCLAVE 2024

HR Coordinators Conclave 2024 was organised by the Directorate of HRD (DHRD) in association with Defence Geo-Informatics Research Establishment (DGRE), Chandigarh, during 26-27 September 2024 at DGRE Manali. The theme of the conclave was 'Transforming HR Strategies: Leading & Managing the Change'. The event was inaugurated by Smt U Jeya Santhi, OS & DG (HR).

Delegates from various DRDO laboratories enthusiastically participated in in-depth deliberations on vital HR roles

for organizational success, HR-related issues, and best practices.

DGRE organized a field visit and showcased various R&D initiatives and achievements during the

conclave. All the participants highly appreciated the event. The conclave ended with renewed commitment to make HR more effective in DRDO.



WORKSHOP ON RESERVATION MATTERS

A two-day workshop on Reservation matters, Conduct of Disciplinary Proceedings and Online Monthly Returns Module of e-COP was organized by the DOP, DRDO HQrs at R&D(E), Pune during 1-2 August 2024 for interaction with representatives (Liaison Officers /Senior Administrative Officers /Administrative Officers) of the laboratories of DRDO.

The workshop was inaugurated by Prof. Prateek Kishore, DG (ACE). He emphasized that the lack of knowledge of reservation matters can result in violation of Constitutional Rights of deserving candidates/employees. Shri SK Diwivedi, Director, DOP, expressed his gratitude towards the Director R&D(E), Pune and Prof. Kishore, for accepting the invitation.

Shri Sandeep Singh, Joint



Director, DRDO HQrs delivered lectures on preparation/maintenance of reservation rosters and the handling of disciplinary matters, where in he discussed both the theory and practice exercises and the common mistakes made by officials dealing on these subjects. Smt Sadhna Pathak, TO 'B', DRDO HQrs. gave an overview of e-Cop and its benefits and stressed timely

update of e-Cop.

Shri Naresh Viridi, Addl Director, Pers-SRC & DRTC delivered lectures on handling representations received from Hon'ble NCSC/NCST and the duties and responsibilities of liaison officers for SC/ST. Dr SE Talole, Officiating Director R&D(E) appreciated the faculty and participants to have a healthy discussion to clear all doubts.



COURSE ON DRDO MAYURPANKH ERP

R&DE (E), Pune, organised a course on 'DRDO Mayurpankh ERP' during 20-23 August 2024. Dr Talole Sanjay Eknath, OS & Officiating Director, R&DE(E), inaugurated the course in the presence of Mr MM Kuber Sc 'G', Mr NK Chaudhary Sc 'G', Ms Gurpreet Kaur Sc 'F', and other senior officers of R&DE(E) and participants. Dr Sanjai Kumar Dwivedi, Sc 'G' & Director DOP, addressed the participants through Vaarta and emphasised the need to capture online processing knowledge of the Mayurpankh ERP and stressed the importance of automation. The course included faculties from the R&DE (E) Mayurpankh Software Development Team.

A total of 100 participants from various DRDO laboratories

attended the course in hybrid mode (offline and online). The Mayurpankh ERP provides modules catering to day-to-day office administration with features of configuration and workflow management. These modules can be broadly divided

to manage various HR-related activities, resource management, and information broadcasting. administrators and allied cadres primarily utilize all these systems. During the training, various modules of the Mayurpankh ERP were discussed



COURSE ON SOFT COMPUTING AND ENGINEERING MEASURES FOR LANDSLIDE

Defence Geoinformatics Research Establishment (DGRE), Chandigarh, organized a five-day Continuing Education Program (CEP) during 23-27 September 2024 on 'Soft Computing and Engineering Measures for Landslide'. The objective of the CEP was to provide knowledge on the latest soft computing techniques along with engineering measures for the mitigation of landslides. Dr KS Rao, Emeritus Professor, IIT Delhi, delivered the inaugural talk on 'Stability and Monitoring Aspects of

Landslides in Different Areas of the Himalayas'. The faculty from the Geological Survey of India (GSI), IIT Roorkee, IIT Mandi, CSIR-CBRI Roorkee, Punjab University, and Chandigarh University, along with industry

partners such as Maccaferri Environmental Solutions Pvt. Ltd. and Synspective, and domain experts from DGRE, presented in-depth talks on a wide range of topics related to mountain geohazards.





AVALANCHE AWARENESS AND SNOW-MET TRAINING AT SIACHEN BATTLE SCHOOL BY DGRE MMC SASOMA

Siachen, a snow-bound area of Indian Himalaya, is prone to snow avalanches. These avalanches severely restrict the mobility of troops and various military activities. Before their induction at Siachen Battle School (SBS), DGRE conducted snow-meteorological data observation and avalanche awareness training for Officers, JCOs, and ORs, from various units to enhance their readiness for safe mobility on operational duties and commitments in the Siachen area. Capt. Sumit Ojha conducted the course along with his team. The troops received technical talks on

collecting snow and meteorological data, avalanche safety and rescue procedures, health issues in snow-bound.

The training will help them

perform their assignments in these regions efficiently and will enhance the troop's preparedness for the present assignment in the snowbound region of Siachen.



COURSE ON AI/ML IN EMBEDDED SYSTEMS AT DLRL

The Defence Electronics Research Laboratory (DLRL), Hyderabad, conducted a course on AI/ML in Embedded Systems during September 18–20, 2024. The course was planned to cover AI/ML aspects in embedded systems, which are deployed as edge devices/sensors in a bigger system.

The course was planned with 12 sessions. The faculty for 2 sessions was from reputed institutions of learning, 2 from sister laboratories, 2 from industry, and the rest from various groups of DLRL actively working on AI/ML.

The course was inaugurated

by Shri N Srinivas Rao, DS & Director DLRL, in the presence of Dr M Chakravarthy, OS & Associate Director, Smt Soma Vashishta, Sc 'G' & Directorate of P&C, HRD, Shri Tapas Kumar Hazra, Sc 'G' Additional Director, Directorate of Naval Projects, Shri

JRC Sarma, Head HRDC, and Mr K Radhakrishna, Sc 'F' & Course Director.

A total of 61 participants from Tri-Services; various sister laboratories of DRDO; BEL; DLRL; and other defence organizations attended the course.





COURSE ON SUB TERAHERTZ TECHNOLOGIES

Microwave Tube Research and Development Centre (MTRDC), Bengaluru, organised a three-day course on 'Sub Terahertz Technologies' during 18-20 September 2024. The course was meant to inculcate the concept of sub-THz devices, their applications, measurement techniques, and realisation methodologies. Around 50 participants from MTRDC, other DRDO laboratories, Bharat Electronics Limited, STAR-C, and Army AD attended the course. The course consisted of 10 sessions, which included lectures on terahertz technologies, the research frontier in sub-THz

frequencies: device-to-application consideration, w-band solid-state sources, the design approach of sub-THz devices, and planar SWSs for THz VEDs, among others.

The training course was inaugurated by Dr Lalit Kumar,

former Director MTRDC, and Shri Gampala Viswam, DS & Director, MTRDC and LRDE. Dr Anurag Srivastava, Sc 'F', and Shri Nani Medicherla, Sc 'F', were the course director and associate course director, respectively.



COURSE ON LATEST TOOLS AND TECHNIQUES OF DIGITAL PHOTOGRAPHY AT DESIDOC

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi, organized a course on 'Latest Tools & Techniques of Digital Photography & Videography' during 14-16 October 2024 with the objective to abreast the participants about the latest techniques of photography and videography and its implementation and action in DRDO. The faculty of the course includes renowned freelancer photographer from the industry with high level of expertise. The participants were briefed about the product, portrait, and studio photography; basics of camera techniques; image retrieval tools; AI tools; etc. Dr Mohd. Yousuf Ansari, Sc 'G' & Course Director inaugurated the course



and emphasized the importance of photography and videography activities in DRDO. Shri Tapesh Sinha, Sc 'F' & Deputy Course

Director, gave a brief introduction of the course. Over 35 participants from various DRDO laboratories attended the course.



TRAINING ON IRON REMOVAL UNIT BY DRL

Training sessions on Iron Removal Unit (IRU) were conducted by Defence Research Laboratory (DRL), Tezpur, at HQ 71 Inf Div, Missamari, Assam, HQ 5 Mtn Div, Tenga, Arunachal Pradesh, and HQ 21 Mtn Div, Umroi, Meghalaya, on September 13, 20, and 27, respectively. Sessions aimed to sensitize and empower army personnel stationed in remote and forward areas of the northeastern region of India with the capacity to effectively manage potable water. Iron contamination in water can

cause a variety of problems, such as unsightly discoloration, turbidity, deposits in distribution systems, and an unpleasant taste. Training sessions focused on IRU's SOP, including installation, operation,

and maintenance, along with a hands-on demonstration of the DRDO Water Testing Kit. More than 200 army personnel from 48 different army units participated in the training sessions.



WORKSHOP ON GENDER SENSITIZATION

DL, Jodhpur

A Gender Sensitization Workshop was organised by Defence Laboratory, Jodhpur (DLJ), on 10 September 2024, with the aim of fostering awareness on gender equality and inclusivity within the workplace. Dr Sunita Kumbhat (former Prof. JNUV, Jodhpur) and Miss Akshiti Singhvi (Advocate Raj High Court) provided insight on the prevention of sexual harassment, understanding gender biases, promoting equal opportunities for all employees, and the legal framework around gender equality, including the Sexual Harassment of Women at



Workplace Act (POSH).

The event concluded with a vote of thanks delivered by Dr Anuradha Bera, Sc 'F' & Chairperson of ICC.

DMSRDE, Kanpur

A one-day workshop on Gender Sensitization was conducted at Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, on 11 September 2024. The workshop was inaugurated by the Mrs Shubhi Gupta, Additional District & Sessions Judge, Kanpur, as Chief Guest in the presence of Dr Anindita Chakraborti, Prof. of Sociology, Deptt. of Humanities & Social Sciences, IIT Kanpur, as Guest of Honor, and Prof. Mridula Shukla, Ex. Principal, KVM College, Kanpur, as Special Guest. Dr Mayank Dwivedi, OS & Director, DMSRDE, welcomed all the speakers and highlighted

the status of gender equality in the whole DRDO. The vote of thanks was delivered by Dr Kavita Agarwal, Sc 'F' & Head Women's Cell. The event was organised by Mrs Jyoti Srivastava, Sc 'G' & Presiding Officer ICC, DMSRDE.



DRDO HQrs, Delhi

Internal Complaint Committee (ICC), DRDO HQrs Delhi, organised a workshop on gender sensitization on 10 September 2024. Dr Samir V Kamat, Secretary DD R&D & Chairman DRDO, inaugurated and graced the workshop. Ms Roopika Chaudhary, Sc 'G' & Chairperson



ICC, welcomed all the participants and emphasised the importance of gender sensitization. Dr Mehbuba Begam, Sc 'F' & Member ICC, gave a brief introduction of the workshop and welcomed Dr Neetu Jain, a guest speaker from the Indian Institute of Public Administration (IIPA), New Delhi, to create awareness about gender sensitivity and to facilitate inculcating values of equality, inclusivity, and diversity, which are essential for building a healthy society as well as a healthy workplace.



DRL, Tezpur

A Gender Sensitization Workshop was held at Defence Research Laboratory (DRL), Tezpur, on 13 September, 2024. Dr Rashmi Rekha Devi, Sc 'E' & Chairperson, ICC, DRL, narrated about the course. Dr Dev Vrat Kamboj, Director, DRL, stressed during his address the significance of gender sensitization, gender equality, and the safety of women at the workplace.

The event organized three interactive lectures. Dr Namami Sharma, Faculty, Department of Social Work, Tezpur University, gave a lecture on Understanding Gender: The difference between sex and gender and the historical evolution of gender. Mrs Hema Das, the secretary of EAST, a voluntary organization working

for social and gender justice, explained the importance of gender sensitization and gender equality for social justice. In another lecture, Shri Arman Thapa, Advocate from District Legal Services Authority, Tezpur, gave a brief introduction to the POSH Act 2013.



ISSA, Delhi

Institute for System Studies and Analyses (ISSA), Delhi, organised Gender Sensitization Workshop 2024 on 18 September 2024. Smt Vandana Sharma, President, Nari Raksha Samiti, Civil Lines, a member of the NGO, delivered an informative talk explaining the history, rules, and importance at the workplace. She also provided an explanation of a few examples she had personally handled. All the officers and staff of the laboratory, including the temporary and contractual staff, attended the event.



MTRDC, Bengaluru

A one-day workshop on gender sensitization was organised at

the Microwave Tube Research & Development Centre (MTRDC), Bengaluru, on 10 September 2024. Smt Shweta Krishnappa, Government Advocate, Karnataka, and Prof. Anjula Gurtoo, IISc, Bangalore, graced the occasion as the Chief Guests. Smt Malathi Limaye, retired scientist from ADE, honored the event as Guest of Honour. Dr SK Datta, OS & Center Head, MTRDC, welcomed the guests and addressed the audience. The very first talk of the event was delivered by Dr Latha Christie, Sc 'G' on 'Organizational Behaviour and Organizational Excellence'. Prof. Gurtoo presented a talk on 'Being Gender Sensitive at the Workplace'. Smt Krishnappa delivered a talk on 'The Relevance and Importance of Sexual Harrassment of Women at Workplace'. Dr M Sumathi, Sc 'F' and Smt Sujatha B, TO 'A', were the coordinator and associate coordinator of the workshop, respectively.





WORKSHOP FOR PGCL EMPLOYEES TO HIGH ALTITUDE BY DIPAS

Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi, organised an orientation workshop for induction of Power Grid Corporation of India Limited (PGCL) employees to high altitude on 19 September 2024, at PGCL regional headquarters in Jammu, and was attended by Dr Rajeev Varshney, Director DIPAS, Shri Amit Sharma, Chief General Manager (i/c) Pang-Kaithal HVDC Project, PGCL, and senior officials from DRDO and PGCL. DRDO and PGCL have signed an MoU wherein DRDO will provide technical know-how to PGCL for induction and sustenance at high altitudes during the implementation of their 5000



MW Pang-Kaithal HVDC Project (15,760 ft) in Ladakh. Speaking on the occasion, Dr Rajeev Varshney emphasized the need for adequate precautions during the induction phase of PGCL employees. DIPAS handed over technologies related

to high altitude sustenance to PGCL. The 5000 MW Pang-Kaithal HVDC Project by PGCL will be a great step towards energy security in Ladakh and utilization of solar power for the national grid.

COURSE ON EMERGING TECHNOLOGIES FOR AIRBORNE SURVEILLANCE AT CABS

A course on 'Emerging Technologies for Airborne Surveillance' was conducted during 25-27 September 2024 at Centre for Airborne Systems (CABS), Bengaluru, to share the technical knowledge acquired with the working forces of DRDO.

Dr K Rajalakshmi Menon, DS & DG (AERO) & Director CABS (Additional Charge), CABS, inaugurated the course, Air Vice Marshal KN Santosh VSM, Commandant SDI, AF was the Guest of Honour and the keynote Address was given by Ms Backialakshmi, OS & Associate Director, CABS.

In the inaugural speech, the Chief Guest emphasized the importance of the course as a platform to share the knowledge and acquire practical exposure

on DRDO products. A total of 47 officers from both internal and sister laboratories of outstation and few IAF officers also participated in the CEP





CELEBRATION OF HINDI PAKHWADA

ADE, Bengaluru

Aeronautical Development Establishment (ADE), Bengaluru organized Hindi Pakhwada 2024 during 2-15 September 2024 under the guidance of Shri Akhilesh Kumar Jha, Sc 'F'. The event included various competitions such as hindi handwriting, story writing, paragraph and phrase translation, hindi noting, technical writing in Hindi, drawing/sketching/painting, *tasveer kya bolti hai*, quiz, and antakshari.

Shri Y Dilip, OS & Director, chaired the concluding ceremony on 27 September 2024. The director electronically released the 26th General Edition of *Nabhatarang* House Magazine of ADE. Manthan (Mann ki Baat), a Special Programme was Conducted for senior scientists of the ADE, wherein they expressed their own views effectively in Hindi.

The director presented 'Manthan' participants with knowledge-filled books as mementoes. Prize-winners for Hindi Pakhwada competitions were awarded, and based on the performance towards Official

Language Implementation in the Division in the year 2023-24, Rolling Shield was given to the Admin Division.

DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, organized Hindi Pakhwada 2024 from 18 to 30 September 2024.

Dr Mayank Dwivedi, OS & Director, DMSRDE, inaugurated the event as the Chief Guest. Various competitions in Hindi, including essay writing, story writing, typing, debate, scientific presentation, and a GK quiz competition, took place during the Pakhwada. On 30 September 2024, DMSRDE organized a Kavi Sammelan, in which 20 poets participated and recited their poems. Dr Kingsuk Mukhopadhyay, Additional Director, DMSRDE, distributed mementos to all the poets.

The laboratory also organised a Hindi Karyashala on 'Kanthasth Software (Anuvaad) Evam Rajbhasha Pragati Akhya Sampreshan' on 28 August 2024. Dr Paritosh Malaviya, Assistant

Director (Rajbhasha), DRDE, Gwalior was the invited speaker in the Karyashala.

DRDO HQrs, Delhi

Hindi Pakhwada was celebrated in DRDO HQrs during 17 September 2024 to 1 October 2024, and the celebration was inaugurated by Dr Manu Korulla, DG (R&M), as a Chief Guest, who emphasized the inevitable importance of Hindi not only as the official language of our nation but as a continuously flourishing language on an international platform.

Shri Sunil Sharma, Director, DPARO&M, also gave a valuable speech to the participants, advising them to regularly use and practice Hindi in their official work, in accordance with the Official Language Policy of India. Smt. Arun Kamal, Assistant Director (OL), gave the detailed overview of the event and reinvigorated all the employees for participating in all the competitions with full zeal and enthusiasm.

Shri Chandra Prakash Meena, Sc 'E', Additional Director, DPARO&M, presented a vote of thanks and expressed his heartfelt gratitude to the Chief Guest and everyone present there.





4TH ALL INDIA OFFICIAL LANGUAGE CONFERENCE 2024

DRDO HQrs has been conferred the prestigious Rajbhasha Kirti Award 2023-24 by the Dept. of Official Language, MHA, for its in-house magazine, 'Raksha Anusandhan Bharti'. The Director, DPARO&M, received the award

from the Hon'ble Minister of State, Home Affairs, in the presence of the Hon'ble Home Minister, Govt. of India, during the "4th All India Official Language Conference" celebrating Hindi Diwas at Bharat Mandapam, New Delhi.

The Hon'ble Home Minister also released the book 'Vigyan Vihaan' (published by DRDO HQrs) on the occasion and appreciated the initiative of using 'Saral Hindi' in S&T for easy understanding of science in Hindi.



RAJBHASHA WORKSHOP

On September 13, 2024, the Dt. of Parliamentary Affairs, Rajbhasha and Organisation & Methods (DPARO&M), DRDO HQrs, conducted a one-day workshop at DRDO HQrs. The workshop focused on the use of 'Advance Tools in Hindi' to enhance the use of Hindi in daily official work. More than 80 participants attended the workshop. Shri Sunil Sharma, Sc 'H' & Director, DPARO&M, inaugurated the workshop and delivered the keynote address along with a brief overview of the topics to be covered in the workshop and their uses. Distinguished guests/ experts from various institutes,

i.e., Shri Shashipal, Joint Director, from C-DAC, Shri Rajiv Rawat, Senior Hindi Officer, IIT Kanpur, Sh Ajay Malik, Deputy Director OL (retd.), and Shri Rajesh Sharma,

Deputy Director (OL), ESIC, have delivered the talks, and the event concluded with a vote of thanks by Shri Chandra Prakash Meena, Sc 'E' & Addl Director, DPARO&M.





Joint Rajbhasha Technical Seminar (Aero-cluster) at GTRE, Bengaluru

Gas Turbine Research Establishment (GTRE), Bengaluru, organised a one-day Rajbhasha Technical Seminar for Aero-cluster. The seminar was inaugurated on 28 August 2024 by Shri Sunil Sharma, OS & Director, DPARO&M. Shri MZ Siddique, DS & DG (Aero), was the Guest of Honor, and Dr SV Raman Murty, OS & Director, GTRE, was the patron of the seminar along with Shri Sujeet Kumar Singh, Sc ‘G’ & Chairman, Seminar Organising Committee.

In his address, Shri Sharma praised the gathering for the latest software and tools available for easy work in Hindi. He advised everyone to make use of them for Rajbhasha implementation at the office. In his address, Shri MZ Siddique expressed his pride in organizing such a focused technical seminar in Rajbhasha, citing the paper-presenters as the seminar's strength. Dr S V Raman Murthy, in his address, expressed his happiness for hosting this seminar.

The session featured 47 papers that covered a wide range of topics, including aerospace and related



technologies, defence system certification aspects, artificial intelligence and machine learning, DRDO's research collaboration with industry and academia, and management services. Thirty participants from Aero Cluster laboratories and other DRDO laboratories participated in the event.

LRDE, Bengaluru

Electronics & Radar Development Establishment (LRDE), Bengaluru, organized Hindi Pakhwada from 2-20 September 2024. More than 400 officers and staff enthusiastically participated in various Hindi competitions were organised during the Pakhwada.

The valedictory event featured Shri LK Dash, Post Master General, Karnataka Circle, Bengaluru, as the Chief Guest, with the Director, LRDE leading the proceedings. In his address, the Chief Guest said that the language used at the workplace, whether for doing project work or in the day-to-day official work language, helps in bringing everyone together, in which Hindi plays a major role. In his address, the Director said that we celebrate the September not only as Hindi Month, but also as an official language festival/day. He appealed to everyone to use Hindi as the medium of communication and work in daily offices.



MTRDC, Bengaluru

The Microwave Tube Research & Development Centre MTRDC, celebrated Hindi pakhwada from 28 August 2024 to 23 September 2024. Various competitions, were organised as part of the celebration.

The Chief Guest for the valedictory ceremony was Shri Tribhuvan Narayan Singh, General Manager (Components), Bharat Electronics Limited, Bengaluru. Dr M Santra, OS & Vice Chairman, OLIC, gave welcome speech. Dr SK Dutta, OS & Center Head, also addressed the gathering. The purpose of the official language policy and rules were reiterated in the official language report by Dr Malatesh Mailar, Assistant Director (Official Language) of the Centre.

The Chief Guest discussed the rationale behind the designation of Hindi as the Rajbhasha, and its scientific foundation. Dr Vishal Kesari, Sc ‘F’ & Liaison Officer for Official Language at the center, presented a vote of thanks.



NMRL, Ambernath

The Naval Materials Research Laboratory (NMRL), Ambernath, celebrates Hindi Day and Pakhwada from 14 to 30 September 2024. Various competitions were organised during this event to promote use of Hindi and encourage the implementation of the official language policy.



More than 100 NMRL employees participated in the celebration. Dr Anil Singh, Dean, Faculty of Humanities, Mumbai University, graced the occasion as Chief Guest for the closing ceremony of the event held on 8 October 2024. Shri PT Rojatkar, OS & Director, NMRL, addressed the gathering and motivated all to strengthen use of Hindi in official work and highlight the significance of Hindi language.



NPOL, Kochi

Naval Physical and Oceanographic Laboratory (NPOL), Kochi, celebrated the Hindi Pakhwada during 19 August 2024 to 4 September 2024. Shri Vasudevan S, Director (Systems) and Officiating Director, NPOL, inaugurated the celebration. A Hindi surprise test was also conducted after the inauguration.

Thirteen competitions were conducted for employees of the Underwater Acoustic Research Facility (UARF), Idukki campus of NPOL.

The event concluded with a closing ceremony on September 26, 2024. Dr Duvvuri Seshagiri, OS & Director, NPOL, presided over the ceremony. Shri K Mohanan, Sc 'G' & Director (Management), and Shri Biju Gopal, Sc 'G' & Group Director (P&A), gave

felicitations. The Director, NPOL, awarded certificates and prizes to the winners of all competitions during the valedictory function. The 'N' house, which scored the most points, received the 'Hindi Fortnight Rolling Trophy'. Shri Ram Lochan Awasthi, Sc 'E' & Hindi Officer, presented an overview of fortnight celebrations conducted during the years 2024–25. Dr Nishamol PA, Sc 'F' was the Chairperson of the Committee.



NSTL, Visakhapatnam

The Hindi Pakhwada was organised Naval Science & Technological Laboratory (NSTL), Visakhapatnam. Dr Abraham Varughese, OS & Director, conveyed his greetings and stressed the need to implement Rajbhasha in official activities. During the fifteen-day event, various competitions were organised and *Mantavta*—an extempore event was conducted in which speech in Hindi was delivered by senior officers of the laboratory. Smt Sabita Soreng, Sc 'F' informed the gathering about various events to be organised during the celebration. Shri Vivek Sharma, Sc 'F' & Hindi officer, in his speech conveyed his appreciation to all the participants and the entire organising team, including judges, for the successful conduct of Hindi Pakhwada 2024.



PXE, Chandipur

Proof & Experimental Establishment (PXE), Chandipur celebrated the Hindi Pakhwada during 2-26 September 2024 with various programs. The ceremony was inaugurated by Dr PK Dasgupta, Sc 'G', the officiating director.

The officers and staff participated in various competitions, such as Hindi extempore speech, Hindi poem recitation, Hindi translation, Hindi noting/drafting, Hindi essay writing, Hindi poem writing, Hindi dictation, etc.

A theme-based Hindi storywriting competition has been introduced this time for the employees. First, Second, and Third 'Rajbhasha Shield' was awarded to those sections who have done their official work more in Hindi for the year 2023-24.

Shri Subodh Kumar Nayak, Director, PXE, chaired the celebration of Hindi Day on 26 September 2024. The winner competitors were awarded by Shri Nayak in the presence of Dr HS Panda, Sc 'G' & Associate Director.





APPOINTMENT

Dr R Kumar, Sc 'G', assumed charge as Centre Head of the Defence Institute of Bio-defence Technology (DIBT),



formerly known as the Defence Food Research Laboratory (DFRL), Mysuru, effective from 25 September 2024.

Dr Kumar holds an MSc from TamilNaduAgriculturalUniversity and a PhD in Food Science from Bharathiar University, Coimbatore. He is currently serving as the Project Director of the Space Food and Logistics Programme at DIBT, Mysuru, for the proposed 'Gaganyaan mission,' a collaborative initiative between ISRO and DRDO. He has over 28 years of R&D experience in combat ration technology, food packaging, and thermal/non-thermal processing. His contributions include the development of meals ready-to-eat (MRE) rations for the Army and Navy, biodegradable packaging solutions, and multilayer packaging for dehydrated vegetables. Dr Kumar has also spearheaded the development of an automated tender coconut water processing system for large-scale production and the processing of coconut sap (Neera).

In addition to these roles, Dr Kumar is a committee member responsible for revising the ration scales of the Indian Army and Navy. He also acts as an examiner for the Defence Food

Analyst examination, which the DGST administers to ASC officers. His active involvement extends to serving as a scientific panel member of the Food Safety and Standards Authority of India (FSSAI) and the Bureau of Indian Standards (BIS). He also serves on the Board of Studies for Food Science and Technology at the University of Mysore, Vellore Institute of Technology (VIT), Jawaharlal Nehru Technological University (JNTU), Kakinada, and Mangalore University.

Dr Kumar has received many accolades throughout his career, including the DRDO Scientist of the Year Award (2020), National Technology Innovation Award (2019) by the Ministry of Chemicals, Fertilizers, Government of India, DRDO Technology Group Award (2019, 2014, 2011, 2003), Thomas Edison Award (2014) in Food Technology Dr. Vasundhara Memorial Best Research Paper Award (2007), Best Research Paper Awards (2007, 2008 & 2009), Best Review Paper Awards (2018, 2017 & 2007), Best Poster Awards (2014 & 2007), Laljee Godhoo Smarak Nidhi Award (2007), DRDO Performance Excellence Award for Retort Pouch Processing of Ready-to-Eat Foods (2004), DRDO Cash Award (1999), and many others.

He holds 16 granted patents, has 18 more filed patents, and has authored 6 book chapters. His work has been published in over 80 research papers in international journals, and he has delivered more than 140 presentations at national and international conferences.

DRDO Representation at ESCC, Spain

The 3rd Global Summit on Advances in Earth Science and Climate Change (Adv. ESCC 2024) was held on September 26–27, 2024, in Barcelona, Spain. Dr Durgesh Nandini, scientist from the Centre for Fire, Explosive, and Environment Safety (CFEES), Delhi, was invited as the 'Distinguished Speaker' from India. She attended the global summit and delivered her talk on the title 'Compositional Insight into Sustainable Fire fighting Foam for Strategic Applications'. During her session, a comprehensive discussion on 'Forever Chemicals' and their environmental aspects took place. The event greatly facilitated networking with peers and industry partners, provided a global perspective on recent advancements, provided insight into new and sustainable practices, and exposed participants to diverse perspectives in the research and development of sustainable technologies and their applications. Many renowned scientists, researchers, and industry experts from countries such as the USA, the United Kingdom, Canada, Italy, Japan, Poland, and Russia attended this international event.





NORTH ZONE BADMINTON TOURNAMENT 2024-25

The DRDO North Zone Badminton Tournament 2024-25 took place at DL, Jodhpur from September 2-4, 2024. Eighteen north zone laboratories, including IRDE, DEAL, CFEES, INMAS, DESIDOC, SAG, DRDE, ADRDE, SSPL, TBRL, ITM, DRDOHQrs, CEPTAM, RAC, JCB, and DLJ, participated in the tournament. The tournament was inaugurated by Sh RV Haraprasad, OS & Director DLJ.

The TBRL, Chandigarh won the team championship, while INMAS, Delhi came in second. In men's open singles and ladies open singles, the winners were Mr VishavJeet, TA 'B' and Ms Aruna, Sc 'B' from host team DLJ. The veteran singles and



doubles event was also won by the DLJ players Mr Surrender Arora, TO 'C' and Mr Rajeev Sankhla, TO 'C'. The North Zone team

selects the best players from all participating teams to represent DRDO North Zone Laboratories in the Nationals of Badminton.

SOCIAL ACTIVITIES AT NMRL

Blood Donation Camp

Naval Materials Research Laboratory (NMRL), Ambernath, arranged a blood donation camp in collaboration with NGO Tarun Mitra Mandal, Ambernath, on the occasion of the National Voluntary Blood Donation Day celebration on 1 October 2024. Shri PT Rojatkhar, OS & Director NMRL, inaugurated the camp and administered a pledge to NMRL employees for voluntary blood donation. The camp received an overwhelming response from the NMRL employees, contractual staff, DSC personnel, and their family members. A total of 105 individuals donated blood in this camp.



Medical Camp

On September 27, 2024, NMRL organized a medical camp to promote early disease detection, timely treatment, and health awareness among its sanitary workers, cleaning employees, and gardening staff. Shri PT Rojatkhar,

OS & Director, NMRL inaugurated the camp, emphasizing the importance of regular health check-ups, particularly for workers in critical roles like cleaning and sanitation. The camp contributed to the wellbeing of individuals by providing essential medical services and guidance on maintaining a healthy lifestyle.





VISITORS TO DRDO LABORATORIES

CASDIC, Bengaluru

The Secretary, Dept. of Electronics, IT, BT and S&T, Govt of Karnataka visited CASDIC, Bengaluru on 23rd September 2024. Shri. CH Durga Prasad, OS & Centre Head, CASDIC welcomed the team and gave a brief on various activities of the laboratories. It was conveyed by the visiting team that objective of the visit is to interact and identify key areas of military technologies, systems & services where private sector can participate, innovate, support and contribute. CASDIC team briefed the visiting team about current engagements with various industries and academia located in various parts of the country.

Discussions were held on potential future engagements with private sector for the ongoing/proposed Projects and technology development activities in CASDIC. Further the team visited static display of technologies, systems, sensors & PODs developed by CASDIC and currently deployed on various combat aircraft of IAF.

CFEES, Delhi

Dr UK Singh, DS & DG (LS) visited the Centre for Fire, Explosive, & Environment Safety (CFEES), Delhi, on 5 September 2024, to review the set-up of R&D activities carried out in the field of biodegradation of HTPB binder-based composite propellant in rocket motor systems. He was accompanied by Dr DT Selvam, Sc 'G' & Director (PM) O/o DG (LS). Shalini Anand, Sc 'F', provided a briefing on the degradation



Dr UK Singh, DS & DG (LS) in discussion with scientists from CFEES

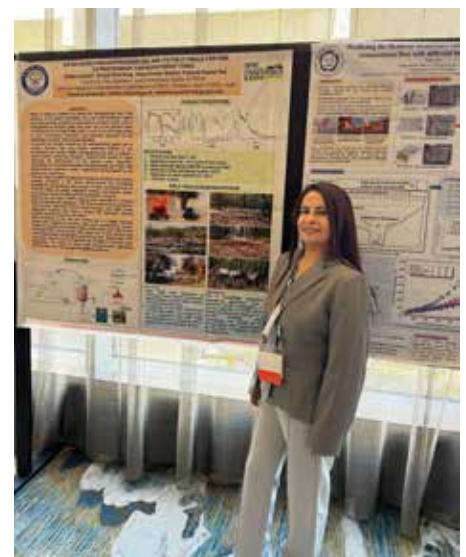
of HTPB binder-based rocket propellant through insects and the future scope of the recent findings. DG (LS) appreciated the insect-based bio-treatment of composite propellants initiated at CFEES and suggested the involvement of life science laboratories in the collaborative work.

Visit of CFEES officers at the Louisville Marriott Downtown in Kentucky, USA

Dr Shalini Anand, Sc 'F', attended and presented a poster titled 'Water-based fire-suppressing gel and its field trials for fire extinguisher for bush/forest fires' at the Society for Fire Protection Engineers (SFPE) 2024, Annual Conference & Expo, on 6-8 October 2024 at the Louisville Marriott Downtown in Kentucky, USA.

She also attended a pre-

conference seminar on 'Introduction to Ethics and Peer Review for Fire Protection Engineers' and a post-conference seminar on 'Sprinkler Design for Engineers' on October 6, 2024, and October 9-10, 2024, respectively. She earned 16 professional development hours (PDHs) credits.



DRDO HQrs, Delhi

☞ Shri Piyush Anand, IPS, Director General, NDRF, visited DRDO HQrs on 23 September 2024. During the visit, he interacted with Dr Chandrika Kaushik, DG (PC & SI), and the team of the Directorate of Low Intensity Conflicts (DLIC) and deliberated over niche technological areas where DRDO can assist NDRF under the DRDO-MHA Collaboration. Director DLIC gave a detailed presentation on products developed by DRDO laboratories relevant to disaster relief operations carried out by NDRF.

☞ Shri Mrityunjay Kumar, Inspector General (Provisioning), ITBP, visited DRDO HQrs on 20 September 2024 along with DIG (Provisioning) and DIG (Communication). Indo-Tibetan Border Police (ITBP) is one of the prime Central Armed Police Forces under the Ministry of Home Affairs, which guards the more than 3000 km-long Indo-China border, ranging from Karakoram Pass in Ladakh to Jachep La in Arunachal Pradesh. The Force also has important roles in internal security duties and operations in LWE areas in Chhattisgarh.

DGRE, Chandigarh

☞ Smt Uma Jeya Santhi, OS & DG (HR), Dr Shailesh Kumar Singh, Director (DHRD), Dr Sanjai K Diwedi, Director (DOP), Smt KV Prabha, Director (RAC), Ms Sunita Vadhera, Director (CEPTAM), along with Shri Satya Prakash Dobhal, Director (ITM), visited Defence Geoinformatics Research Establishment (DGRE), RDC,



Shri Piyush Anand, IPS, Director General, NDRF, with his team at DRDO HQrs on 23 September 2024



Shri Mrityunjay Kumar, Inspector General (Provisioning), ITBP, during his visit at DRDO HQrs on 20 September 2024



Smt Uma Jeya Santhi with other dignitaries during their visit at DGRE, Chandigarh



Manali on 25 September 2024. Dr PK Satyawali, OS & Director, DGRE, welcomed DG (HR) and other dignitaries and briefed various R&D activities undertaken by DGRE towards mountain geohazard management and support services to DGRE users.

⌘ Maj Gen S Sooraj, MG, ASC, HQ Northern Command, visited DGRE MMC Sasoma on 26 September 2024. Lt Col. Saurabh Sharma, OC, DGRE MMC Sasoma welcomed him, showed him the DGRE model room, and explained the technical aspects of DGRE's operation in high-altitude regions of the Indian Himalaya for geohazard mitigation, in addition to the Avalanche Awareness and Safety Training that troops receive before induction.

⌘ Shri Sanjeev Goyal, IA&AS, Director General (Audit), Defence Services, Chandigarh, accompanied by Ms Inabat Khaliq, IA&AS, Dy Director (Audit), and other audit team members, visited DGRE on 15 October 2024. Dr PK Satyawali, OS & Director, DGRE, welcomed DG (Audit) and briefed him of ongoing projects, R&D activities, various operational activities, and support services of DGRE to the users.

DL, Jodhpur

⌘ On October 5, 2024, Vice Admiral AY Sardesai, Inspector General of Nuclear Safety (IGNS), visited the Defence Laboratory, Jodhpur. During the visit, the laboratory team presented their cutting-edge research in areas such as nuclear surveillance, stealth countermeasures, and desert operational support, and showcased the developed



Maj Gen S Sooraj, MG, ASC, HQ Northern Command at DGRE MMC Sasoma



Vice Admiral AY Sardesai, IGNS, during his visit at the DL, Jodhpur

products and technologies. VSM, Air Officer Commanding-in-Chief, MC, along with other senior officials of IAF, visited DLJ. Shri RV Haraprasad

⌘ Air Marshal AK Arora, AVSM, VSM, DG (Aircraft), and Air Marshal VK Garg, AVSM, VSM,



Air Marshal AK Arora, AVSM, VSM, DG (Aircraft), and Air Marshal VK Garg, AVSM, VSM, Air Officer Commanding-in-Chief, MC, at DL, Jodhpur



provided a concise overview of the laboratory, emphasizing its pursuit of niche technologies. The DLJ team demonstrated the cutting-edge products and technologies developed by the laboratory in the areas of radiation surveillance, camouflage, chaff, and MW obscurant chaff.

DLRL, Hyderabad

✂ Dr Samir V Kamat, Secretary DDR&D, & Chairman DRDO visited Defence Research and Development Laboratory (DRDL), Hyderabad, on 27 September 2024, to review the progress and status of projects taken up by DLRL. The Director, DLRL, briefed the status of 17 projects (7 mission mode, 1 infrastructure development, and 9 technology demonstrations).

Dr Kamat interacted with the respective project directors who were present during the meeting. The Director, DLRL presented the lab's futuristic product roadmap, clearly delineating the systems planned for the next 5 and 10 years.

✂ A team of 21 officers from Tri-Services visited DRDL on 24 September 2024, as a part of their NEMP Course at MILIT, Pune. Shri MV Ravindra Kumar, Sc 'G', from Directorate of Land EW Technologies welcomed the officers and presented a brief overview of DLRL's core competence, systems delivered, projects in progress and technical nuances involved in developing EW systems for various platforms.

The officers also interacted with Shri Om Prakash Ray Choudhury, Sc 'F' and Smt NP Supriya, Sc 'F' during their visit.



Dr Samir V Kamat, Secretary DDR&D & Chairman DRDO at DLRL, Hyderabad

IRDE, Dehradun

Shri Jitendra J Jadhav, DS & Director, Aeronautical Development Agency (ADA), Bengaluru, and his team visited Instruments Research & Development Establishment (IRDE), Dehradun, on 4 September 2024. Air Vice Marshal Arun Malik, VSM & Project Director (Flight Test) along with his team also visited IRDE on 4

September 2024. Dr BK Das, DS & DG (ECS) and Dr Ajay Kumar, OS & Director IRDE presented major R&D initiatives taken by IRDE and technologies developed. He briefed about products which have been developed and inducted.

NMRL, Ambernath

✂ VAdm K Srinivas, AVSM, NM, VSM (Retd), DG ATVP, visited the Naval Materials



Shri Jitendra J Jadhav, DS & Director, ADA at IRDE, Dehradun



Research Laboratory (NMRL), Ambernath, on 4 October 2024 for interactions on AIP for futuristic submarines. Shri PT Rojatkar, OS & Director NMRL, welcomed DG ATVP. The scientists delivered presentations on AIP, as well as other projects and R&D activities. DG ATVP arranged a visit to the land-based prototype of AIP. He interacted with NMRL scientists during the exhibition of NMRL-developed technologies.

✂ Dr Y Sreenivas Rao, DS & DG (NS & M) visited NMRL on 25 September 2024 for review of the AIP Programme. Shri PT Rojatkar, OS & Director NMRL, welcomed DS & DG (NS & M). He addressed the gathering and highlighted the remarkable contributions made by NMRL, shared his experience with NMRL employees.

✂ Shri RV Hara Prasad, DS & DG (NS & M) visited NMRL on 9 October 2024 for review of the AIP



Dr Suman Roy Choudhury, Sc 'H' & Programme Director, explaining fuel cell technology to VAdm K Srinivas

Programme and other ongoing projects. Shri PT Rojatkar, OS & Director NMRL, welcomed DS & DG (NS & M). The scientists made presentations on AIP and various other projects and R&D activities. In his address, Shri RV Hara Prasad

expressed his appreciation for the work at NMRL and motivated the employees to maintain the timeline of projects as per the road map while at the same time ensuring the development of products with high standards.



Dr Y Sreenivas Rao, DS & DG (NS & M) during his visit at NMRL on 25 September 2024



Shri RV Hara Prasad, DS & DG (NS & M) at NMRL on 9 October 2024

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A VERY HAPPY DIWALI 2024