



## 2 May 2025 Air Force Auditorium **New Delhi**

## Intelligence, Surveillance, and Recce

- Real-time Monitoring
- Target Identification
- Border Surveillance

### **Precision Strikes & Combat Missions**

- Armed UAVs
- Suppression of Enemy Air Defenses
- Close Air Support

## **Logistics and Supply Delivery**

- Battlefield Resupply
- Casualty Evacuation

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## **Electronic Warfare (EW)**

- Signal Jamming
- Cyber Operationsand SIGINT

## **Training and Simulation**

- Target Practice
- **Operational Drills**

### Search and Rescue (SAR)

- Locate survivors and assess damage
- Day/Night Operations with TI

## **Psychological Operations**

Loudspeaker Broadcasts

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Demoralization with persistent surveillance

## Anti-Submarine and Maritime Ops

- Maritime Patrol
- Submarine Detection
- Mine Countermeasures

## **Swarm Tactics**

- **Decoy Operations**
- Force Multiplication

## **CBRN** Defence

- **Detection Systems**
- **Decontamination Support**
- **Communications Relay**
- Signal Extension
- Network Support

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AS & C-UA

**INDIA 2025** 

**UNMANNED AERIAL SYSTEMS** 

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# **Unmanned Aerial Systems Have Become Integral to Modern Warfare**

Drones continue to evolve with advancements in artificial intelligence, autonomy, and sensor technology, further enhancing their military applications. Their cost-effectiveness and ability to minimize risks to human personnel make them indispensable in modern warfare.

Russia and Ukraine have both sides have utilized drones to gain strategic advantages in reconnaissance, precision strikes, and psychological operations. The innovative use of UAVs has not only changed the dynamics of the conflict but also demonstrated the transformative impact of drones in modern warfare.

Unmanned Aerial Vehicles (UAVs) or drones, have become integral to modern military operations. They are versatile platforms that can be used for a variety of missions. Key military uses of drones include the following:

#### Intelligence, Surveillance, and Reconnaissance (ISR).

Real-time Monitoring: UAVs provide real-time imagery and data for • battlefield awareness.

• Target Identification: They help identify enemy positions, movements, and assets.

• Border Surveillance: Drones monitor and secure national borders against infiltration.

#### **Precision Strikes and Combat Missions.**

• Armed UAVs: Equipped with precision-guided munitions for targeting high-value targets.

 Suppression of Enemy Air Defenses (SEAD): Some drones are designed to neutralize enemy radar and missile systems.

 Close Air Support: UAVs provide support for ground forces in combat zones.

#### Logistics and Supply Delivery.

 Battlefield Resupply: Transporting ammunition, medical supplies, or rations to remote or high-risk areas.

 Casualty Evacuation: Experimental systems are being tested for unmanned casualty evacuation.

#### Electronic Warfare (EW).

• Signal Jamming: UAVs can disrupt enemy communications and radar systems.

• Cyber Operations: Some advanced drones can conduct cyber attacks or collect signals intelligence (SIGINT).

#### Training and Simulation.

• Target Practice: UAVs are used as targets for training air defense systems and pilots.

• Operational Drills: They simulate adversary actions during military exercises.

#### Search and Rescue (SAR).

 Disaster Zones: UAVs locate survivors and assess damage in combat or disaster scenarios.

 Day/Night Operations: Thermal imaging-equipped drones enhance rescue capabilities in low visibility.

#### Psychological Operations (PsyOps).

Loudspeaker Broadcasts: UAVs can disseminate propaganda or instructions in conflict zones.

#### • Demoralization: Persistent surveillance can have a psychological impact on adversaries.

#### Anti-Submarine and Maritime Operations.

• Maritime Patrol: Drones monitor coastal areas and shipping lanes for threats.

Submarine Detection: Equipped with sonar systems to locate submarines.

• Mine Countermeasures: Identifying and neutralizing naval mines.

#### Swarm Tactics.

- Decoy Operations: Overwhelming enemy defenses using drone swarms.
- Force Multiplication: Coordinated swarms can attack multiple targets simultaneously.

#### Nuclear, Biological, and Chemical (NBC) Defence.

• Detection Systems: UAVs detect and monitor radioactive, chemical, or biological threats in hostile areas.

• Decontamination Support: Assisting in decontamination efforts remotely.

#### **Communications Relay.**

- Signal Extension: Acting as airborne relays for communication networks in challenging terrains.
- Network Support: Providing connectivity for forces operating in remote areas.



#### **Counter-UAS Technologies**

Counter-drone technologies have seen significant advancements. Here are some of the latest developments:

Detection and Tracking: Modern counter-drone systems utilize a combination of radar, radio frequency (RF) sensing, and computer vision to detect and track drones from a distance and monitor their movements in real-time.

Jamming and Spoofing: Jamming technologies disrupt the communication and navigation signals of drones, rendering them inoperable. Spoofing techniques involve sending false GPS signals to mislead drones and redirect them away from restricted areas.

Layered Defense Systems: Counter-drone strategies often involve a multi-layered approach, combining various technologies to create a comprehensive defense.

Actual systems for countering drones include Directed Energy Weapons (High-powered lasers and microwave-based systems), Kinetic Interceptors (nets, projectiles, or other means) and Mobile and Deployable Systems (handheld devices and mobile platforms).



# UNMANNED AERIAL SYSTEMS AND C-UAS PROGRAMME FRIDAY, 2 MAY 2025

0830 - 0930 hrs	Registration and Tea
	SESSION 1 - INAUGURAL SESSION (0930-1030hrs)
0930 - 0940 hrs 0940 - 0955 hrs 0955 - 1005 hrs 1005 - 1015 hrs 1015 - 1025 hrs 1025 - 1030 hrs 1030 - 1100 hrs <b>SE</b> Chairman: <b>Air Vi</b> 1100 - 1115 hrs 1115 - 1130 hrs 1130 - 1145 hrs 1145 - 1200 hrs 1200 - 1215 hrs 1215 - 1230 hrs 1230 - 1245 hrs	<ul> <li>Welcome Address. Air Vice Marshal Anil Golani, Director General CAPS</li> <li>Inaugural Address. Air Mshl Tejinder Singh, AVSM, VM, Deputy Chief of the Air Staff.</li> <li>Keynote Address. Lt Gen Vinod Nambiar, YSM, VSM, SM, Director General Army Aviation.</li> <li>Industry Perspective. Agnishwar Jayaprakash, Founder &amp; CEO Garuda Aerospace</li> <li>Industry Perspective. Col KV Kuber, Director Defence &amp; Aerospace, E&amp;Y.</li> <li>Release of EY-IMR Knowledge Paper on Unmanned Aerial Vehicles.</li> <li>Refreshments and Exhibition.</li> <li>SSION 2 - UAS REVOLUTIONIZING MODERN WARFARE (1100 – 1310 hrs)</li> <li>ice Mshl Rahul Bhasin, VM, ACAS (Ops) Space, Air HQ</li> <li>Introduction to panelists and Chairman's Opening Remarks.</li> <li>Review of UAS Operations in Contemporary Conflicts. Speaker from Air HQ</li> <li>Industry Presentation.</li> <li>Industry Presentation.</li> <li>Industry Presentation.</li> <li>Industry Presentation.</li> <li>Industry Presentation.</li> <li>Industry Presentation.</li> </ul>
1245 - 1310 hrs	Questions & Answers.
1310 - 1400 hrs	Lunch
SESSION	3 - SERVICES PLANS: THE FUTURE OF UNMANNED COMBAT (1400–1510 hrs)
Chairman: <b>Air Vi</b> 1400 - 1415 hrs 1415 - 1430 hrs 1430 - 1440 hrs 1440 - 1450 hrs 1450 - 1500 hrs 1500 - 1515 hrs	Introduction of panelists and Chairman's Opening Remarks Progress on DRDO's UAS Projects <b>Speaker from ADE, DRDO.</b> IAF UAS Requirements. <b>Speaker from Air HQ.</b> Army's Tactical UAV Requirements. <b>Col Inf-5, Infantry Directorate, Army HQ.</b> Navy's UAS and Future Plans. <b>Cdr (AW)-RPA, Naval HQ</b> Questions & Answers.
SESSION 4 - DEFENDING AGAINST UNMANNED AERIAL THREATS (1515 – 1620 hrs)	
Chairman: <b>Air Vi</b> 1515 - 1530 hrs 1530 - 1545 hrs 1545 - 1555 hrs	<b>ICE Marshal Joseph Suares VM(G), Air Defence Commander,</b> HQ Western Command IAF Introduction of panelists and Chairman's Opening Remarks R&D in Counter-UAV Technologies. <b>Speaker from DLRL, DRDO.</b> Industry Presentation/ Countering the Threat from FPV drones. <b>Speaker from Armoured</b> <b>Corps Dte, Army HQ.</b>
1555 - 1610 hrs	Countering the Threat from UAS. Speaker from Air HQ.
1610 - 1625 nrs	QUESTIONS & ANSWERS.
Chairman: Air Vice Mshl Ashish Vohra, VSM Retd Addl DG Centre for Air Power Studies	
1625 - 1640 hrs 1640 - 1655 hrs 1655 - 1705 hrs 1705 - 1715 hrs 1715 - 1725 hrs 1725 - 1730 hrs 1730 hrs	Introduction of panelists and Chairman's Opening Remarks Development of Manned-Unmanned Teaming Concept. <b>Speaker from Air HQ</b> . Extending Communication Networks in Remote Areas. <b>Speaker from Sigs Dte, Army HQ</b> Discussion/ Questions & Answers. Closing Remarks. <b>Air Vice Marshal Anil Golani,</b> Director General CAPS Vote of Thanks. <b>Maj Gen Ravi Arora,</b> Chief Editor, Indian Military Review. Refreshments and dispersal.

# **Highlights from Past UAS & C-UAS Event**





Senior subject matter experts explain Services' requirements





Patronised by the Armed Forces' UAS community





Network, exhibit, influence, lead!













Direct B2G meetings with procurement officers