भारत अंतरिक्ष शिक्षा अनुसंधान केंद्र

Bharat Space Education Research Centre

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पत्रांक: 5-15(डब्ल्यू.आई.)/बी.एस.ई.आर.सी./2026/128 दिनांकः 27 फरवरी, 2026

Subject: "Kindly circulate to all Institution, inviting active participation in 2-Day Advanced Defence Drone Technology and Aircraft Design Workshop under part of the broader initiative on Def-Space Education and Employment for all students and Research Scholars, has been updated" -Reg.

आदरणीय महोदया /महोदय,

This is in continuation of our previous communication in November, 2025 regarding the initiatives by Bharat Space Education Research Centre (भारत अंतरिक्ष शिक्षा अनुसंधान केंद्र) to advance space science and technology.

"Announcement"

2- Day Advanced Defence Drone Workshop and Aircraft Design Workshop under Def-Space Programme.

The Government of India, under the visionary leadership of Hon'ble PM Shri Narendra Modi, has initiated groundbreaking reforms in the space sector. These initiatives are designed to enhance and promote space education, research, and development across the nation. A key highlight is the celebration of National Space Day on August 23, which underscores India's commitment to fostering innovation and scientific excellence in space exploration. In alignment with the Viksit Bharat Abhiyan@2047, the Bharat Space Education Research Centre is conducting 2-Day Advanced Drone Defence Workshop and Aircraft Design Workshop under **Def-Space Program.**

In continuation, The Bharat Space Education Research Centre has launched a Def-Space training program in February- March for all (Space Education & Employment).

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1-Day Aircraft Design Workshop

8th March, 2026

Time	Topic	Objectives
0 – 10 min	Introduction to Aircraft Design & Design Process	1. Understand the purpose and scope of aircraft design. 2. Learn step-by-step design methodology. 3. Identify trade-offs between performance, cost, and safety.
10 – 20 min	Velocity of Flight & Standard Atmosphere	Differentiate true, indicated and equivalent air speed & Mach number
20 – 30 min	Anatomy of the Aircraft	Identify major components (fuselage, wings, tail, landing gear, engines).
30 – 40 min	Nomenclature of Airfoil	Familiarize with standard terminology of the airfoil.
40 – 60 min	Aerodynamics of Airfoils (Velocity of Flow, Flow Pressure Distribution, Lift, Drag, Aerodynamic Centre and Centre of pressure.	1. Relate pressure distribution to lift & drag generation. 2. Define and locate aerodynamic center and center of pressure.
60 – 75 min	Wing Geometry	Define aspect ratio, taper ratio, sweep, dihedral, twist.

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75 – 90 min	External Forces on Aircraft	Understand force balance in steady and accelerated flight and equations of motion.
90 – 110 min	Thrust Required Minimum & Power Required Minimum	Derive conditions for minimum thrust & power requirement.
110 – 125 min	Engine Sizing	Estimate engine thrust/power with aircraft mission needs.
125 – 140 min	Weight Estimation	Break down weights into empty, payload, fuel and structural weights
140 – 155 min	Range & Endurance	Derive the equations for range and endurance (Time of flight). Engage participants in Q&A
155 – 170 min	Flight Equilibrium & Stability Wing alone configuration Wing and tail combination	Understand about static and dynamic stability. Derive equations for longitudinal, lateral, and directional stability for wing alone and wing tail combination
170 – 180 min	Flight Demonstration & Special Topics (Flat plate & Similar Wing-Tail flight) Question and answers	Apply theory to practical demonstration. Preparation of flat plate wing to test glide performance and test glide performance of similar wing –Tail combination) Engage participants in Q&A and wrap-up.

Apply for Aircraft Design Workshop: https://forms.gle/pBAjtvVnxUbc2S9W7

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2-Day Defence Drone Workshop

21st & 22nd March

Day - 1

DAY 1: AERODYNAMICS & CORE HARDWARE SYSTEMS

Focus: Engineering Fundamentals and Tactical Design

Time Slot	Module	Key Sub-topics
00:00 - 00:45	The UAV Ecosystem	Defense classifications (HALE/MALE), Fixed-wing vs. VTOL, Global & Domestic UAV trends.
00:45 - 02:00	Propulsion & Avionic Suites	BLDC motor dynamics, ESC protocols, Li-Po/Li-Ion energy density, Flight Controller architectures (SoC).
02:00 - 03:00	Aerodynamics & Control	Bernoulli's principle in UAVs, PID tuning, Vibration isolation, and RF Telemetry links (2.4GHz / 5.8GHz / LoRa).

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Day - 2

DAY 2: TACTICAL INTELLIGENCE & AUTONOMY

Focus: Mission Planning, AI, and Regulatory Compliance

Time Slot	Module	Key Sub-topics
00:00 - 01:00	Payload & ISR Systems	Electro-Optical (EO) & Infra-Red (IR) sensors, Photogrammetry, and LiDAR integration for terrain mapping.

Day - 2

01:00 - 02:00	AI & Edge Computing	Computer Vision for target tracking, Autonomous Waypoint Navigation, and Swarm Intelligence basics.
02:00 - 03:00	Policy & Career Roadmap	DGCA Drone Rules 2021, Digital Sky, National Security Ethics, and Defense R&D career pathways.

Participants opting for a single technology may register via the provided link.

2-DAY DEFENCE DRONE TECHNOLOGY : https://forms.gle/6H5tYw56ihsm1Z3S9

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To,

All the Institutions,

We are pleased to announce an important update regarding the 2-Day Advanced Defence Drone Technology and 1-Day Aircraft Design Workshop The primary aim of this Workshop is to enhance Space & Technology education and the Defence technological advancement. We kindly request all Institutions to disseminate this information widely among their Faculty/ Research Scholars and students. We are pleased to invite all students and research scholars to participate in the Innovative program. Bharat Space Education Research Centre has implemented various nationwide initiatives to promote space education at grassroots level.

सादर | Regards,

निदेशक / Director
भारत अंतरिक्ष शिक्षा अनुसंधान केंद्र
Bharat Space Education Research Centre

भवदीय

सेवा में,

सभी विश्विद्यालय के कुलपति ।
सभी महाविद्यालय के प्राचार्य ।
विश्विद्यालय / महाविद्यालय के शिक्षक एवं छात्र ।