

# Webinar On Fundamentals of Drone Technology Through Open Source

**Fees ₹ 100/-  
(Including GST)**



**Eligibility:  
Open for All**



## **Topic Covered:**

- Introduction to Drone Technology
- Open-Source Platforms for Drone Development
- Building a Basic Drone Using Open-Source Components
- Flight Dynamics and Control
- Challenges and Best Practices
- Q&A Session



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**Table1: Content for Webinar**

<b>Webinar Title</b>				Fundamentals of Drone Technology Through Open Source			
<b>Organized By</b>				NIELIT Gorakhpur			
<b>Eligibility</b>				Open for All			
<b>Registration Fees</b>				Rs. 100/- Including GST			
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<b>Platform for Webinar</b>				CISCO WebEx			
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<b>S. No.</b>	<b>TOPIC</b>	<b>Details</b>		<b>Time (Minutes)</b>			
<b>1</b>	<b>Introduction to Drone Technology</b>	<ul style="list-style-type: none"> <li><b>Overview of Drones:</b> <ul style="list-style-type: none"> <li>Definition and types of drones (e.g., quadcopters, fixed-wing, hybrid).</li> <li>Key components (frame, motors, ESCs, flight controller, etc.).</li> </ul> </li> <li><b>Applications of Drones:</b> <ul style="list-style-type: none"> <li>Use cases in various industries (agriculture, photography, surveillance, etc.).</li> <li>Impact of drones on modern technology.</li> </ul> </li> </ul>		20			
<b>2</b>	<b>Open-Source Platforms for Drone Development (20 minutes)</b>	<ul style="list-style-type: none"> <li><b>Introduction to Open-Source Projects:</b> <ul style="list-style-type: none"> <li>Overview of popular open-source drone platforms (e.g., ArduPilot, PX4).</li> <li>Benefits of using open-source software for drone development.</li> </ul> </li> <li><b>Key Tools and Resources:</b> <ul style="list-style-type: none"> <li>Introduction to open-source flight control software.</li> <li>Overview of simulation tools (e.g., Gazebo, QGround Control).</li> </ul> </li> </ul>		20			
<b>3</b>	<b>Building a Basic Drone Using Open-Source Components</b>	<ul style="list-style-type: none"> <li><b>Selecting the Right Hardware:</b> <ul style="list-style-type: none"> <li>Choosing compatible components (flight controller, GPS, ESCs, etc.).</li> </ul> </li> <li><b>Software Setup:</b> <ul style="list-style-type: none"> <li>Installing and configuring open-source flight control software.</li> <li>Basic calibration and setup (e.g., accelerometer, compass, radio).</li> </ul> </li> <li><b>Demonstration:</b> <ul style="list-style-type: none"> <li>Brief demonstration of a drone's setup using open-source tools (Online Mode).</li> </ul> </li> </ul>		30			
<b>4</b>	<b>Flight Dynamics and Control</b>	<ul style="list-style-type: none"> <li><b>Basic Flight Dynamics:</b> <ul style="list-style-type: none"> <li>Understanding pitch, roll, yaw, and throttle.</li> <li>How drones achieve stability and control.</li> </ul> </li> <li><b>Autonomous Flight and Waypoints:</b></li> </ul>		20			

		<ul style="list-style-type: none"> <li>○ Introduction to autonomous flight modes.</li> <li>○ Setting up and executing waypoint missions using open-source tools.</li> </ul>	
<b>5</b>	<b>Challenges and Best Practices</b>	<ul style="list-style-type: none"> <li>• <b>Common Challenges in Drone Development:</b> <ul style="list-style-type: none"> <li>○ Issues related to hardware, software, and integration.</li> </ul> </li> <li>• <b>Best Practices:</b> <ul style="list-style-type: none"> <li>○ Ensuring safety and regulatory compliance.</li> <li>○ Optimizing drone performance and reliability.</li> </ul> </li> </ul>	15
<b>6</b>	<b>Q&amp;A and Discussion</b>	<ul style="list-style-type: none"> <li>• Open floor for questions and clarifications.</li> <li>• Discussion on future trends and advancements in drone technology using open-source platforms.</li> </ul>	15