

# Techno Hub DRONE TECHNOLOGY





# About Course



## DRONE TECHNOLOGY

An **Unmanned Aerial Vehicle (UAV)**, commonly known as a **drone**, is an aircraft without any human pilot, crew, or passengers on board.

UAVs are a component of an unmanned aircraft system (UAS), which includes adding a ground-based controller and a system of communications with the UAV. The flight of UAVs may operate under remote control by a human operator, as **remotely-piloted aircraft (RPA)**, or with various degrees of autonomy, such as autopilot assistance, up to fully autonomous aircraft that have no provision for human intervention.

UAVs were originally developed through the twentieth century for military missions too "dull, dirty or dangerous" for humans, and by the twenty-first, they had become essential assets to most militaries.

As control technologies improved and costs fell, their use expanded to many non-military applications. These include forest fire monitoring, aerial photography, product deliveries, agriculture, policing and surveillance, infrastructure inspections, entertainment, science, smuggling, and drone racing.

Drones and STEM are an ideal pairing. Pretty much every high priority STEM concept is reinforced when kids engage in our drone programs. Of course, just flying a drone around the yard isn't (by osmosis or exposure or something) going to teach kids physics, math, engineering, etc. What is going to teach kids all of those important things is a comprehensive, standards-aligned STEM curriculum.

Whether you are an administrator, educator, or an adult invested in your students' development, here are eight powerful STEM concepts kids learn through drones.



## Physics in Action

For kids, discoveries that are rooted in real world experience are the most memorable. What they see and feel will stick. Whether in or out of the classroom, drones illustrate physical principles like lift, thrust, drag, angular momentum, and more. One of the things we love most about using drones to demonstrate concepts like these is they force kids into the “why.” If the drone doesn’t make it off the table: why? If the flight path deviates unexpectedly: why? If it crashes: why? This forces kids into investigation mode, which drives them deeper into physics and troubleshooting to find their own answers because they want to learn.

## Understanding Mechanics

This is a huge one, because mechanical machinery will always be a guiding force in new technology. Exposure to technology may seem like it’s everywhere for kids, but using drones introduces an important layer of complexity. Drones aren’t just digital: they are mechanical. Understanding the mechanics of how moving parts work is actually less common for kids nowadays, since the devices they use are fully enclosed and kids rarely see the “inner-workings” of machines. Drones expose the moving parts, which connects key concepts and illustrates the “how” behind tech.

## Remote Control Concepts

Aeronautical engineers at mission control, trucking industry dispatchers, even pilots are just a few of the myriad of careers in which remote control knowledge is essential. Drones help children understand how remote control works. They have to maintain line of sight (for the safety factor), use hand-eye coordination, and navigate a three-dimensional space. All of these are great big beautiful skills they can use in virtually any profession.

## Real-World Math

If STEM or STEAM could be effectively conveyed through the common written or spoken word, every kid would pass every test and tick every box. That’s not how developing brains work, though. Children are at various levels of development, including the ability to process abstract concepts. As it turns out, math has many components that are abstract... as are many elements in engineering, art, science, you name it. Drones take the theory and make it real. Kids can touch drones, read their numerical data, and break down their functionality. This provides an important experiential opportunity that supports mathematical understanding.



## Spatial and Abstract Planning

A key developmental milestone is when kids can do fine motor spatial planning (that's how they learn to space letters). Drones extend this development by facilitating larger-scale and increasingly complex planning efforts. Where things go, how long it takes them to get there, how they travel from point A to point B: these are all fundamental elements of flight planning that have way bigger applications for kids. There is a great deal of math involved, whether or not kids realize that's exactly what they're doing, and calculating with precision is essential to pulling off a successful drone mission.

## Coding and Programming

This is a huge one, because mechanical machinery will always be a guiding force in new technology. Exposure to technology may seem like it's everywhere for kids, but using drones introduces an important layer of complexity. Drones aren't just digital: they are mechanical. Understanding the mechanics of how moving parts work is actually less common for kids nowadays, since the devices they use are fully enclosed and kids rarely see the "inner-workings" of machines. Drones expose the moving parts, which connects key concepts and illustrates the "how" behind tech.

## Remote Control Concepts

This has become a bit of a buzzword that every ambitious parent is attracted to. But all coding really is (at this level) is learning how to provide clear instruction in a very specific format. That exercise alone is incredibly valuable and similar to learning to read music. The brain has to stretch to remember, then reuse, precise patterns, or the drone simply won't work correctly. The real-life payoff of coding drones is in immediate success or failure, which provides kids with a great feedback loop to either celebrate or head back to the drawing board.

## Leadership and Working together

At least in the context of drone classes, drone clubs, or drone camps: kids can use drones to learn STEM but do so... together. When it comes to STEM careers, we at Drone Legends talk about this a lot: we don't want kids to just have technical knowledge but to be good humans who can work well with others. Flying drones requires leadership, giving and receiving directions, coping with failure, offering encouragement, and sticking to something that may be hard. All of these are important social-emotional skills, fueled by a fun STEM experience.

# COURSE CONTENT

## Module 1: Introduction to Drone Tech

- ✓ What is a Drone ?
- ✓ How does a Drone Work ?
- ✓ History of Drones and UAV
- ✓ Applications of drone in day to day life
- ✓ Applications of drones in industry
- ✓ Economic model of Drone in industry

## Module 2: Designing & Structuring of a Drone

- ✓ Types of Frames
- ✓ Types of materials used in frame design
- ✓ Aerodynamic Analysis of Drone Frame design
- ✓ Bernoulli's theorem
- ✓ Temperature Testing Analysis with Different Frame Materials
- ✓ Designing a Basic Frame

## Module 3: Propellers

- ✓ What is Propeller ?
- ✓ How does Propeller work and help in flight
- ✓ Types of Propellers
- ✓ Designing of a Propeller
- ✓ How to mount a Propeller .

## Module 4: Concept of Thrusters

- ✓ Getting the basic idea of Thrusting
- ✓ Physics and Chemistry Applied in Thrusting
- ✓ Newton Equations of Motion .
- ✓ Acceleration
- ✓ Retardation
- ✓ Concept of liquid Nitrogen and Hydrogen
- ✓ How does liquid nitrogen and hydrogen work
- ✓ Basic Experiment of a Thruster

## Module 5: Motors

- ✓ Types of Motor
- ✓ Why only BLDC Motors are used in industrial and project drones ?
- ✓ What is BLDC Motor ?
- ✓ How does a BLDC Motor work .
- ✓ Opening and fully understanding a BLDC Motor
- ✓ Controlling Motors using Analog and Digital Signals
- ✓ How to control heating in motors ?
- ✓ How to Customize a Motor ?

## Module 6: Electronic Speed Controllers

- ✓ How to design a Power Supply for a High Speed BLDC Motor .
- ✓ Understanding the whole concept behind Electronic Speed Controller
- ✓ How to fix Voltage Fluctuations in BLDC Motor and ESC
- ✓ Insulation Techniques in ESC
- ✓ How to change Motor Direction in Electronic Speed Controller

## Module 7: AFlight Controller and Pilot Systems

- ✓ What is a Flight Controller ?
- ✓ Types of Flight Controllers
- ✓ Signal Transmission Techniques
- ✓ Triggering an action by identifying a signal
- ✓ Concept of Signal Filtering
- ✓ Types of Signal Filters
- ✓ Creating a Signal Filter on Zero PCB
- ✓ Understanding the Concept of Transmitters and Transmitting
- ✓ How does a Signal Travel from the Transmitter to the Receiver .
- ✓ PLC, Microcontroller & Microprocessor based Transmitters .
- ✓ How to Calibrate Transmitters & Receivers
- ✓ How to pair Transmitters and Receivers .
- ✓ Introduction to DJI Naza Flight Controllers .
- ✓ Calibrating DJI Naza
- ✓ Concept of Cameras



## COURSE DETAILS

### 3 Months

**Fees - 25,000 RS**

- ✓ Kit will be provided but you can not take it home after completion of course.
- ✓ Live field internship
- ✓ Major project development
- ✓ Write & Publish Research Paper in International Journal
- ✓ Paper presentation in National/International conference.

### 6 Months

**Fees - 55,000 RS (with Kit)**

- ✓ You can take your kit home
- ✓ Live field internship
- ✓ Major project development
- ✓ Write & Publish Research Paper in International Journal
- ✓ Paper presentation in National/International conference.
- ✓ 1 month revision course anytime in 2 years

No extra charges will taken for the mentioned services apart from the course fees. We are here to help students, not to eat their money, we want to promote technology education .

## COURSE DETAILS

### Scheme for students with financial issues:

There are some students who are unable to do courses like these due to financial issues, so for them we have a scheme that will help them to pursue these courses and make their career.

- **Course Loan**

We will offer a course loan with 0 interest which the student can repay after the completion of the course , this loan scheme is applicable for both 3 months as well as 6 months courses . No interest will be charged when the student comes to repay the loan . For more information please call or whats app on our helpline +91 9997030409 .

- **Equal Monthly Installments**

Apart from the loan scheme we also have a system of equal monthly installments (EMI) . In this the student with a very minimum down payment can pay an equal amount per month for a duration of 3 months or 6 months . No interest will be charged on the EMIs . This scheme is applicable for both the 3 months and 6 months course . For more information please call or whats app on our helpline +919997030409 .

- **Course Group Mutual Funds**

In this scheme, if a students come in a group , like in a group of 3 students or 5 students or 10 students, then based on the size of the group there will be exclusive discount per student. This scheme is applicable for 3 months and 6 months course. For more information please call or whatsapp on our helpline +919997030409 .

Note : We are always there to help students and build a better future .

## COURSE DETAILS

### Delivery of the Course :

- **Online Mode**

If the student is unable to reach our location , we will deliver the course in an online mode. The student will get his / her kit by courier and the rest of things will remain the same.

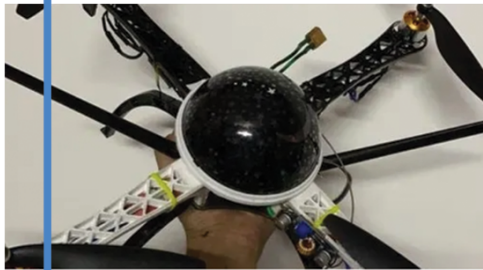
- **Offline Mode**

Techno Hub Laboratories will not deliver the course by displaying slides on a power point presentation. Techno Hub Laboratories has a state of the art Laboratory which is equipped with latest equipments, so the student will do the entire course hands on which will make a student unstoppable in the industry.



# Why learn from us?

Techno-hub laboratories is a recognized woman led start-up based in Uttarakhand. Education, Environment and Technology are our focus areas. We have a core team of young professionals who are committed to quality and excellence. We have been engaged in conducting a lot of online professional courses around our core areas of expertise. We have a large number of technology experts from Industry as well as academia associated with us to make these workshops really effective.



23 July 2022

Drone Developed by Techno Hub to transport medicines payload 2 kg

Techno Hub has developed a drone that can carry medical assets of a maximum payload 2 kg .

[Continue Reading](#)



13 July 2022

Techno Hub wins SDG - 9 Award by CM Pushka Singh Dhama Ji

Centre for Public Policy and Good Governance (CPPGG), Department of Planning, Govt. of Uttarakhand in collaboration with UNDP Organised Uttarakhand's First SDG Goalkeeper Awards. The intend of this initiative is to recog...

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Our founder director Dr. Reema Pant brings about 30 years of experience in the field of teaching, learning and research. The core group and advisers of Techno-hub are distinguished academicians, industry experts, and nationally and internationally renowned people of repute.

Techno Hub Laboratories is recognized by Startup India , Startup Uttarakhand . Techno Hub Laboratories has won the SDG – 9 Goalkeeper by Government of Uttarakhand for Industry and Innovation excellence .

Startup  
Uttarakhand

#startupindia



**TECHNO HUB  
LABORATORIES**

**Interested to Joining  
Register Now !**

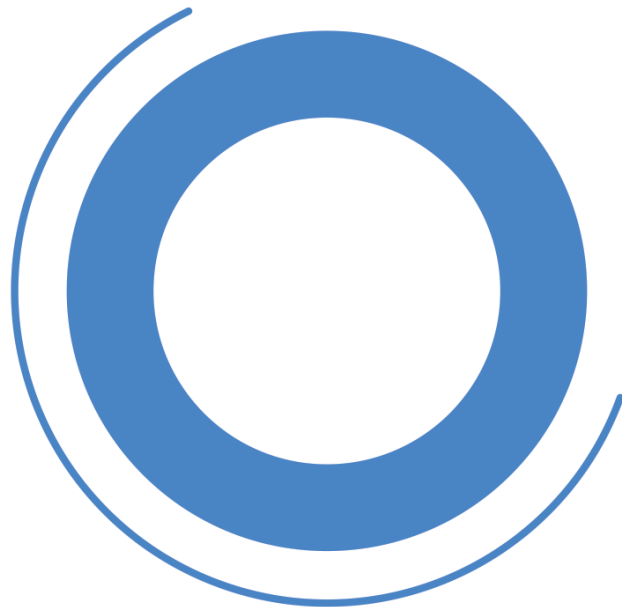
## Features

- ✓ Professional Mentor
- ✓ High Quality Courses
- ✓ Teams and Training Room
- ✓ Modern Learn Methods

**+91 9997030409**





# Techno Hub Training & Internships




**CONTACT  
US!**

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