

## 1-Day (session-1)

### Introduction to Multicopter

- Definition
- History of Quadcopter
- Difference between different types of Multicopter
- Applications of Quadcopter
- Uses of Quadcopter
- Working Mechanism
- Operating Techniques
- Constructional Techniques

### Base of Multicopter

- Frame
- Types of Frame
- Frame Configuration
- Propeller
- History of Propeller
- Theory and Designing of Propeller
- Standard Propeller Size
- Different forces acting on Propeller
- Understanding Propeller Size and Control
- Analysis of Propeller Pitch, Diameter and RPM

### Motors

- Types of Motors
- Basic working concept of Motors
- Characteristics of BLDC
- Advantages of BLDC
- Applications of BLDC
- Theory of operation of BLDC
- Different Phase BLDC Motor
- Evaluation of BLDC

## 1-Day (session-2)

### Electronic Speed Controller (ESC)

- Features
- Working
- Pulse Width Modulation
- Interfacing of ESCs
- Start up Procedures
- Trouble Shooting

### Overview of Sensor

- Definition
- Different Types of Sensors
- Use of Sensor in QuadCopter
- Interfacing of Sensors

### Introduction to Flight Controller Board

- What is a controller and working?
- controller Architecture and Interfacing.
- Understanding the detailed pin out of the controller.
- Understanding different protocols and peripherals of Flight Controller Board

### Introduction to Battery

- Difference between Lithium Ion (Li-ion) and Lithium Polymer (Lipo) Battery Characteristics of Lipo Battery
- Benefits and Downsides of using Lipo
- Charging Lipo Battery
- Maximum charge voltage and current
- How to overcome over discharging
- Do's and Don'ts for Lipo
- Safety Precautions

## **2-Day (Session-1)**

### Radio Devices

- Definition
- Use of RC Remote Control
- Understanding Radio Transmitter
- Types of Radio Transmitter
- Different Channels of Radio transmitter
- Basic Functionalities of RC Transmitter

### Installation of Software and Debugging

- Flashing the Firmware into Flight Controller Board with the use of Programmer Updating the Firmware
- Synchronizing RC Transmitter and Receiver
- Calibrating RC Transmitter
- Working with Flying Model Simulator

Live Flying Session with Experts Guidance

Competition and certificate distribution.