

# 14-Day FPV Drone Making & Flying Syllabus

## (Simulator Mandatory – Day 1 to Day 14)

### Course Outcome:

Participants will gain hands-on experience in FPV drone component selection, assembly, configuration, calibration, simulator flying, and real FPV flight, ensuring safe and confident operations.

### DAY 1 – FPV Introduction, Safety & Simulator Orientation

Theory: Introduction to FPV drones, applications, safety rules, subsystem overview

Practical: Component identification, tool handling

Simulator: Installation, radio calibration, basic throttle and yaw control



### DAY 2 – Drone Basics & Classification

Theory: Multirotor basics, drone types, thrust-to-weight ratio

Practical: Frame size comparison, mission-based selection

Simulator: Take-off, landing, orientation practice

<b>Large</b>		More than 150 Kgs
<b>Medium</b>		25 Kgs - Less than 150 Kgs
<b>Small</b>		2 Kgs - Less than 25 Kgs
<b>Micro</b>		250 gms - 2 Kgs
<b>Nano</b>		Less than 250 gms

### DAY 3 – Frame Selection & Mechanical Design

Theory: Frame materials, stack standards, vibration control

Practical: Frame inspection, dry fitting

Simulator: Hover and throttle control



## DAY 4 – Motor & Propeller Selection

Theory: Motor KV, size, propeller pitch and blades

Practical: Motor and prop matching

Simulator: Forward flight and throttle curves



## DAY 5 – ESC & Power System

Theory: ESC types, current rating, power distribution

Practical: ESC soldering, continuity check

Simulator: Coordinated turns, altitude control



## DAY 6 – Flight Controller & Firmware

Theory: FC architecture, sensors, firmware overview

Practical: FC mounting, wiring

Simulator: Angle and Horizon mode practice



## DAY 7 – Radio Controller & Receiver

Theory: Radio protocols, failsafe, antenna orientation

Practical: Binding, channel mapping

Simulator: Figure-8 maneuvers



## DAY 8 – Battery & Charger Selection

Theory: LiPo basics, C-rating, safety, charger features

Practical: Battery and charger setup

Simulator: Efficient flight and throttle management



## DAY 9 – GNSS Module & Navigation

Theory: GNSS fundamentals, magnetometer

Practical: GNSS wiring and configuration

Simulator: Smooth cruising practice



## DAY 10 – Firmware Configuration & Calibration

Theory: ESC, sensor calibration, failsafe setup

Practical: Firmware flashing, calibration

Simulator: Mode switching and emergency drills



## DAY 11 – FPV Video System

Theory: FPV camera, VTX, antennas, regulations

Practical: Camera and VTX installation

Simulator: FPV-style flying



## DAY 12 – Pre-Flight Checks & Ground Testing

Theory: Pre-flight checklist, safety checks

Practical: Ground testing, props-off testing

Simulator: Acro mode basics



## DAY 13 – Real Drone Ground Tests

Theory: Simulator to real flight transition

Practical: First hover and LOS flight

Simulator: Advanced practice



## **DAY 14 – FPV Drone Flying & Evaluation**

Theory: PID tuning, maintenance

Practical: Full FPV flying, maneuvers, emergency landing

Simulator: Final skill assessment



### **Final Evaluation:**

Simulator assessment, real FPV flight test, safety compliance check