

Course Content

“UAV & Quadcopter”

Day 1:

1. INTRODUCTION

- Introduction to UAV & Quadcopter
- Introduction to UAV: Unmanned Autonomous Vehicles
- Different Types of Quadcopters
- Application of UAV & Quadcopter
- Basics of hardware and software
- New and Upcoming Technologies.

2. ELECTRONICS EXPLANATION

- Introduction to electronics
- Applications of electronics
- Electronics components explanation
- Voltage divider rule
- Introduction to analog Circuits.
- Different types of motors

3. EXPLANATION OF ROBOTICS

- Introduction to Autonomous Robots.
- Interaction between real and digital world.
- Concepts of artificial intelligence.
- Microcontrollers and Microprocessor difference
- Introduction to embedded system
- Video sessions on advancements in Technology
- Concepts of hardware and software interface
- Different types of Sensors
- Accelerometer
- Gyro
- Barometer

- Different Microcontroller Boards
- Different types of controllers

4. FRAMES INTRO

- Introduction to Quadcopter Frames
- Different types of Frames
- Center of Gravity
- Different materials used for frames
- Designing different frames
- Developing different models

Day 2:

5. EXPLANATION OF MOTOR

- Introduction to Brushless Motors
- Different types of Motors
- Motor Ratings
- Concept behind
- How to choose correct motor for your Quadrotor.
- Motors used in other applications

6. DIFFERENT TYPES OF PROPELLER

- Introduction to Propellers
- Propellers demystified
- Different types and sizes of propellers
- Propellers used for Quadrotors
- Propellers with BLDC Motors
- Propeller Balancing

7. ESC DEMYSTIFIED

- Introduction to ESC
- Electronic Speed Controller Demystified
- Different types of ESC
- ESC Rating
- ESC used for Quadrotors

- ESC Connections with propellers

8. CONTROLLERS EXPLANATION

- Introduction to KK 2.0 Quadcopter Controller Board
- KK 2.0 Controller Board Explanation
- Different Controller boards
- Connections of ESC to KK 2.0
- Calibration in KK 2.0
- Safe and Armed mode explained
- Self-Level Mode Explained
- Tx-Rx Calibration with KK 2.0

9. EXPLANATION OF TRANSMITTER AND RECEIVER

- Introduction to 2.4Ghz TX RX
- Transmitter used for Quadrotors
- TX Rx Explained
- Tx Rx connections with Controller Board
- Checking null factor
- Proper calibration
- Introduction to Batteries
- Batteries used for Quadrotors
- Li Po Battery and Charging
- Connections of Li Po Battery
- Precautions with Li Po Battery

10. FLIGHT MODE DEMYSTIFIED

- Flight Mode
- Final Calibrations and Testing
- Weight Calibration
- Center of Gravity checking
- Checking connections
- Selecting proper modes for flight
- Safety Precautions
- Take Off