AMPUSH

AMPUSHWORKS ENTERPRISES PRIVATE LIMITED

Technical Training Programmes 2026–27

SYLLABUS

Drone Technology

Course information	
Programme	6. Drone Technology
Duration	One month
Total hours	102 hours (theory 32, practical 64, examinations 6)
Course fee	₹3,000 per candidate
Batch size	Minimum 10 candidates; batches scheduled after sufficient registrations
Eligibility	B.Tech, Diploma, ITI, B.Sc and BCA students, engineering graduates, working professionals and college faculty
Prerequisites	Basic electronics. Interest in mechanics and aviation is helpful.

1. Course Introduction

This course explains how a multirotor drone is built, configured and flown safely. Candidates work with real components, learn the importance of calibration and safety, and get an overview of applicable rules for drone operation in India.

2. Course Objectives

On completing this course, candidates will be able to:

- Identify drone types and their applications
- Select and assemble drone components
- Configure and calibrate a flight controller
- Explain the principles of flight
- Follow safe operating practices and understand the regulatory framework

3. Hours Distribution

Component	Hours
Theory classes (8 units × 4 hours)	32
Practical sessions (14 labs × 4 hours)	56
Mini project (practical)	8
Theory examination	2
Practical examination	4
Total programme hours	**102**

Practical sessions including the mini project total 64 hours (56 + 8). The examinations (6 hours) are held after completion of the training.

4. Theory Syllabus (32 hours)

Unit	Topics covered	Hours
Unit 1	INTRODUCTION TO DRONES • Types of drones and uses • Multirotor configurations • Applications in agriculture, survey and inspection	4
Unit 2	FRAMES AND PROPULSION • Frames and materials • Brushless motors and propellers • Thrust and weight	4
Unit 3	POWER SYSTEMS • LiPo batteries: ratings, charging and safety • ESCs and power distribution • Estimating flight time	4
Unit 4	FLIGHT CONTROLLER • Role of the flight controller • Sensors: gyroscope, accelerometer, barometer, GPS • Firmware and configuration software	4
Unit 5	CALIBRATION AND SET-UP • Sensor and ESC calibration • Radio transmitter and receiver binding • Flight modes and failsafe	4
Unit 6	PRINCIPLES OF FLIGHT • Lift, thrust, drag and weight • Roll, pitch, yaw and throttle • Stability and control	4
Unit 7	SAFETY AND REGULATIONS OVERVIEW • Pre-flight checklist • Safe flying practices • Overview of drone rules in India	4
Unit 8	MAINTENANCE AND TROUBLESHOOTING • Inspection and repair • Common faults and fixes • Logging and record-keeping	4

5. Practical Sessions (64 hours)

Lab	Practical assignment	Hours
1	Identify and inspect drone components	4
2	Frame assembly	4
3	Motor and propeller mounting	4
4	ESC wiring and power distribution	4
5	Battery handling and safe charging	4
6	Flight controller mounting and wiring	4
7	Firmware set-up and configuration	4
8	Sensor calibration	4
9	ESC calibration	4

Lab	Practical assignment	Hours
10	Transmitter binding and channel set-up	4
11	Flight modes and failsafe configuration	4
12	Pre-flight checklist practice	4
13	Simulator practice	4
14	Supervised hover test and fault-finding	4
MP	Mini project: Assemble, configure and calibrate a complete multirotor drone, followed by a supervised test flight and flight report.	8
	Total practical hours	**64**

6. Mini Project

Project: Assemble, configure and calibrate a complete multirotor drone, followed by a supervised test flight and flight report.

Each candidate (or small group) plans, builds, tests and documents the project during the final practical sessions, and presents it during the practical examination.

7. Hardware, Tools and Software

- Drone frame kits, brushless motors, propellers and ESCs
- Flight controllers and GPS modules
- LiPo batteries and chargers
- Radio transmitters and receivers
- Flight simulator software

8. Learning Outcomes

By the end of the course, candidates will be able to:

- Assemble and wire a multirotor drone
- Configure and calibrate a flight controller
- Explain the principles of flight
- Carry out pre-flight checks and follow safe practices

9. Assessment and Certification

Examination	What is assessed	Duration
Theory examination	Understanding of concepts, components and principles covered in the 8 units	2 hours
Practical examination	Ability to build, wire, program, test and fault-find; presentation of the mini project	4 hours

Practical assignments completed during the course are also reviewed as part of the practical assessment.

A **training completion certificate** will be issued subject to successful completion of the programme and assessment requirements.

10. Enrolment and Contact

To enrol, send your name, mobile number, college or organisation, course and year, and the name of this programme to Ampushworks. You will be informed when your batch is scheduled.

Contact	Details
Address	Priyadarshi Nagar, Bhagwat Nagar, Patna, Bihar – 800026
Website	https://ampushworks.com
Registration form	https://www.ampushworks.com/training.html#register
Email	support@ampushworks.com
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Note: This syllabus may be updated by Ampushworks to reflect new technology and equipment. The syllabus issued at the start of a batch applies to that batch.