



Course Curriculum: Hands-On UAV (Drone) Training 101

Course by: **IT Business Incubator, CUET**

Collaborating Partner: **Diligite Ltd.**

Website: www.itbi-cuet.com

Course Title: Hands-On UAV Training 101

Course Outcome: Students will be able to design and build their own drones with customized features, bringing their concepts into reality.

Course Summary

No.	Subject	Comments
1	Course Duration	24 Hours (8 Session, 4 Weeks)
2	Delivery Mode	Offline
3	Schedule	Friday & Saturday 10 am to 1 pm
4	Pre-requisites	Yes - Basic knowledge of electronics
5	Lab Facilities	ITBI, CUET & Diligite Ltd. will provide.

Coordinator

Professor Dr. M. Moshikul Hoque
Professor, Dept of CSE, CUET
Director, IT Business Incubator, CUET
Former Dean, Faculty of ECE, CUET
Chair, IEEE Bangladesh

Master Trainer

Professor Dr. Sharif Uddin Ahmed Rana
CEO, Innovation Lab, USA
Professor, Paris Graduate School, France
Director, Solar SkyWays
Mentor, MIT React

Trainers

S. M. Fahim Faysal
Assistant Professor, Dept. of MIE, CUET

Md. Minhajul Islam
R&D Engineer, Diligite Ltd.

Md. Mosharraf Hossain
CEO, Diligite Ltd.
Trainer & Mentor, EDGE IICT CUET DST
Trainer, BDSET Project, BHTPA, ICT Division



Course Curriculum

Modules	Topics	Activities	Outcome
Introduction to Drones & Flight Controller	- Basics of drones & components - Aerodynamics & flight principles - Safety protocols & aviation regulations	- Interactive lecture & discussion - Hands-on demonstration of drone components	- Understand drone fundamentals - Learn essential safety protocols & regulations
Drone Assembly & Wiring	- Assembling the drone frame - Connecting Pixhawk, motors, and power system	- Group-based drone assembly - Hands-on wiring and connection testing	- Assemble a complete drone frame - Correctly wire all components for functionality
Firmware & Calibration	- Installing & configuring Mission Planner / QGround Control - Sensor & flight controller calibration - Understanding flight modes	- Firmware installation on Pixhawk/APM - Calibration of sensors, radio, and ESCs	- Set up and configure a Pixhawk/APM-based drone - Perform basic pre-flight checks
Final Setup & Pre-Flight Testing	- System checks and troubleshooting - Understanding transmitter controls - Final pre-flight inspection	- Conducting pre-flight checks - Testing motor and control responses	- Ensure the drone is fully flight-ready - Operate and understand remote control functions
Flight Training	- Basic flight techniques (takeoff, hovering, landing) - Safety in flight operations	- Instructor-led flight demonstrations - Guided practice on takeoff, hovering, and landing	- Learn and perform basic flight maneuvers - Gain confidence in handling drones under supervision
Hands-On Flight Practice	- Independent flight sessions - Advanced maneuvers (orientation, directional control, stable landing)	- Extended individual flying practice - Group practice and troubleshooting	- Fly and control a drone independently - Gain proficiency in manual drone operations
Problem Solving & Troubleshooting	- Common hardware issues (wiring, motor, power) - Software & calibration errors - Mid-flight troubleshooting techniques	- Practical troubleshooting drills - Group-based problem-solving tasks	- Diagnose and fix common drone problems - Build resilience in handling technical challenges



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Evaluation & Certification	- Individual performance evaluation - Knowledge and skills assessment - Feedback and improvement session	- Final test flight by participants - Instructor-led assessment - Certification ceremony	- Demonstrate ability to build, configure, and fly a drone - Receive course certification as a trained drone operator
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Contact Information

Diligite Ltd.

Room No: 701, 7th Floor, Incubation Building,
IT Business Incubator, CUET

Phone: +88 01731-711434, +88 01620-677963

Email: itbicuet@gmail.com | training@itbi-cuet.com