Unmanned Aerial Vehicle Training

TechEagle (IIT Kanpur Startup)

Summer UAV Training Catalogue

1   Executive Summary

TechEagle is a budding IIT Kanpur campus start-up which provides high quality UAV/Drone Training and Workshops in not just the regular ones but the new industry driven models such as Composite Planes and UAV system building.

Learning always begins with the basics. The field of Unmanned Aerial Vehicles (UAV) & Drones is new to our country. As the needs arise, so must the knowledgeable engineers who provide these services. This summer we are providing 7 days advanced UAV training facilities in many cities of India. We wish to provide the Summer UAV Training at your Institute for a period of 7 days. Our training sessions have been designed keeping in mind future industry requirements. These sessions will have five segments: UAV Design, Simulation, Fabrication, Flying Simulation and Real Ground Flying. The Design Session will teach them how to design and bring about a well iterated design. Simulation makes the iterative process faster and more efficient. Fabrication with modern day manufacturing techniques will help in creating an industry level finish. Flying will be done by licensed pilots and finally by the students who have completed their training on the Simulator - how to fly. On four days students will be given modern day UAV technology seminars on how to keep up with the environment.

2   About the Team

TechEagle was envisioned by two undergraduates of IIT Kanpur with the thought that the country's youth lack the practical knowledge and skill to work in the industry. With the goal to bridge this gap we have started providing low-cost high-quality workshops to undergraduate students which will help them connect their theoretical ability to their new emerging practical knowledge and experience.

We have taught 4500+ students through 20+ Workshops, 4 UAV Training Camps, and 20+ Seminars & Flying sessions on 6+ topic in the UAV/Drone Industry with 100% success rate. We are well-versed with the ability to live up to the consumers' need.

We have also collaborated with many institutes to setup UAV/Drone Laboratories in the country to give practical education to engineering students.

We have collaborated with Techfest-IIT Bombay, TechKriti-IIT Kanpur, Fluxus-IIT Indore, Exodia-IIT Mandi and many more to impart the technical skills.

3   Previous UAV Training

TechEagle has conducted one week long Summer UAV Training 2016 in city of Lucknow at Shri Ramswaroop Memorial University. We offered four UAV trainings: RC Trainer Aircraft, RC Aerobatic Aircraft, RC QuadCopter, and RC Flying Wing. There were 200+

Participants who learned UAV Design, Simulation, Manufacturing, and Flying. SRMU, Lucknow gave us their premises to host the training and they got enormous publicity through paper media, social media and other platforms. Some enthusiastic participants also got opportunity to work with us on UAV research and development.

4 Why You?

As mentioned before, we are here to bridge the gap between what the industry needs and what people can deliver. We believe your institute has similar vision for the future and is dedicated to the development of the country. This big UAV Training Camp will help students to make their career in Drone/UAV industry. This will help us all in making students, true engineers.

4.1 Benefits to the students of Your Institute.

- TechEagle will associate with your institute for placement.

- Easiest access to view the event and gain the most out of it.

- Larger Time access to expert mentorship of TechEagle.

- Personal Interaction with founders of the company and career guidance.

- Special Discount for your institute students.

4.2 Facilities Needed

We believe that you are a premier Institute of India, focusing on quality education and infrastructure. Your institute has more than enough facilities for hosting such a grand event. We will be needing Seminar Halls, Training rooms, and a flying ground which can cater to a student strength as high as 250. The event will be one-week long, about 10 hours every day, including Sunday and Saturday. Other than this we need access to the grounds from 6:00 am to 6:00 pm in the evening. Access to the seminar and workshop rooms will be limited to 8:30am to 6:30pm. We hope your institute houses sufficient storage space and power sockets in each room, sufficient to run about 15 laptops at a time and a projector.

5 The UAV Training Session

Our training session has been designed by engineers and professional hobbyists with over four years of experience in the field. Our team consists of engineers from Aerospace, Mechanical, Electrical and Chemical Engineering. The training will have five sessions – Aircraft Design, Design Simulation, Aircraft Manufacturing, Simulation Flying and Real Ground Flying. The main target of this training is to establish a strong base which will help the students to independently design, build and fly their RC aircrafts.

The participants will be able to take part in technical festivals conducted all over the world. The following are the highlights of what these sessions will majorly cover:

5.1 Theoretical Session

1. Fundamentals of Aerodynamics.

2. Various components of an UAV.

3. Stability and Control of an UAV.

4. Introduction to UAV Design.

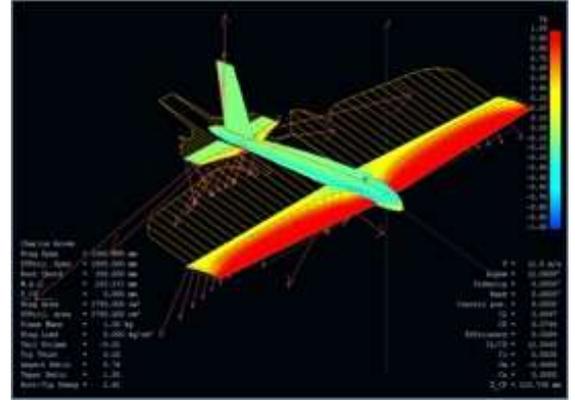5. RC Aircraft Electronics Session.

These sessions will be specific to the type of training selected. On the following days, students will attend seminars on Large-scale Aeromodelling, Modern day UAV development, IC engines and its applications.

5.2 Aircraft Design Session

After the Lecture Session students will create their own design of the UAV. Using an iterative process, students will finalize the specification of their own UAV.

Software Analysis and Simulation

1. Selection of parameters based on Design requirement.

2. Stability analysis of UAV Design.

3. Exploring the Techniques of creating an Excellent Design.

5.3   Aircraft Manufacturing Session

1. Learn Modern Day Manufacturing techniques by experienced Mentors.
2. Hands-on experience with various Aircraft building materials.
3. Logical steps to fabricate aircraft close to simulated design.
4. Electronics Functioning & Integration.
5. Tuning and Trimming of UAV
6. Getting your UAV ready to fly (Weight Balance, Pre Flight Checks).

5.4   Simulator Based Flight Training

This will be the important part of UAV Training. Students will be taught-How to fly, first on Real Flight simulator under the guidance of expert pilots.

5.5   On Field Flight Training

When sufficient training has been done on the simulator, they will fly their self-built models which they were preparing in the previous three days to complete their training.

All the planes built by the students will be flown first by licensed TechEagle Pilots. Students will be briefed on how to make their planes flight ready and the precautions and safety measures to be observed.

6   Summer UAV Training Catalogue

We offer many Aeromodelling training sessions of various skill levels and applications. In the Summer UAV Training Program we are offering four of them.

6.1   RC Aircraft Design

Trainer Aircraft introduces students to the science of Aeromodelling - Stability and control, building, flying etc. They will have first-hand experience on true design associated with flying an aircraft. The session will teach students how to differentiate and choose a design based on application. The builds will differ in the integration of

electronics and their setup. Students will be taught about transmitters and receivers before their flight sessions. The planes will be flown by students in the last session of the training. (Fee: Rs. 4500/-)

RC Trainer Aircraft

6.2 Tri-Copter UAV

Quadrotor is a fully dynamically controlled **V**ertical **T**ake-**O**ff and **L**anding (VTOL) vehicle. This training session introduces a host of electronics. Quadcoptorsare known for their ability to lift heavy loads without much complex aerodynamics. Students will be taught about their mechanics, flight, construction, and How to tune (PID) on Controller boards. (Fee: Rs. 5000/-)

RC Tri-Copter UAV

6.3   Flying Wing Aircraft

Flying Wing is modern day vehicular design. This Tailless aircraft boasts of much lesser empty weight and much lesser drag. But a flying wing is plagued with problems of stability and propulsion. The problem of power is going to become critical with time, so scientists around the world are trying to achieve what seemed impossible till now. To be ahead in the race students have to get training in such complex systems. (Fee: Rs. 5000/-)

RC Flying Wing Aircraft

6.4   RC QuadCopter Drone

Aerobatic Plane training is suggested for ones who are versed properly with the basic and want a first-hand experience to application based designing of aircraft. The design will now include various new factors seen in application based design such as taper, sweep, root chord, tip chord. The construction of this aircraft is more complex as the fuselage will made in parts and wing is inserted in between the fuselage. (Fee: Rs. 4500/-)

RC QuadCopter Drone

7   Training Kit

Students will participate in the training individually. Some of these training sessions will be completed in a team. This will greatly help them grasp different skills and reinforce their cooperative skills. The Teams will be provided with all the required materials and electronics. The electronics will be taken back after the successful completion of training. None of the kits will include batteries, Transmitter, Receiver. Participants can purchase them from us by paying an additional fee to us or can purchase them from other sources.

8   Training Timeline

The complete training will be spread over 7 days, for 8hrs a day. The following is the tentative time schedule for the one week Summer UAV Training.

Session	Day
Theoretical Sessions, Electronics Session	Day 1
Design Session, Manufacturing, Design Simulation	Day 2
Seminar, Manufacturing, Flying Simulation, Test Flights	Day 3
Seminar, Flying Simulation, Electronics Integration , Ground Flying	Day 4
Seminar, Flying Simulation, Fabrication, RTF precaution Session	Day 5
Seminar, Flying Simulation, Ground Flying,	Day 6
Flying with Experts, Convocation, Media Session, Airshow	Day 7

9 For More Details Visit

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