

RCPIT Wings – Activity Report

Introduction

The RCPIT Wings Laboratory has undergone a series of foundational activities aimed at establishing a fully functional, technically equipped, and workshop-ready drone training environment. This report highlights the major tasks carried out during the initial setup phase, including laboratory reassembly, equipment procurement, execution of the AVIATRON: Drone Fundamentals Workshop, and coordinated visits from external college teams. These activities collectively showcase the development, operational readiness, and growing technical engagement of the Wings Lab.

Recommended Sections After Introduction

Lab Reassembly & Setup

The initial and most critical task in establishing the Wings Laboratory was the complete reassembly and structural setup of the workspace. After receiving the lab under RCPIT Wings, a systematic approach was followed to ensure that the environment met all functional, safety, and training requirements.

The reassembly process began with clearing, categorizing, and organizing all available components and equipment. Dedicated zones were defined for drone assembly, testing, charging, storage, and administrative work. Workbenches were re-aligned to support hands-on activities, while electrical points and power distribution were checked to ensure safe operation of chargers, soldering tools, and testing devices.

A full evaluation of missing and required materials was prepared, based on which the essential drone kits, tools, and consumables were listed for procurement. The focus during setup was to create a clean, accessible, and training-friendly environment where students can work efficiently and safely.

A placeholder space was kept in the lab record for attaching photographs showing the before-and-after arrangement, material sorting, and the reassembly process.



Equipment Procurement

To ensure smooth execution of upcoming workshops and practical drone training sessions, a structured procurement phase was completed for the Wings Laboratory. Based on the initial assessment conducted during the reassembly stage, a detailed list of essential materials, tools, and consumables was prepared.

The procurement included complete drone kit sets required for hands-on assembly sessions, along with supporting components such as frames, motors, ESCs, flight controllers, transmitters, propellers, and battery units. In addition, standard workshop tools—including soldering equipment, multimeters, screwdrivers, safety glasses, heat-shrink materials, and cable management accessories—were acquired to support maintenance and troubleshooting tasks.

Special attention was given to safety items such as Li-Po charging bags, fire-resistant mats, and insulated connectors to maintain secure operation during training. Storage units and component organizers were also added to maintain proper categorization of parts and improve workflow efficiency.

This procurement phase ensured that the Wings Lab is fully equipped, standardized, and ready to conduct structured drone-based learning activities.

RCPIT Wings club Activity

1. District-Level Project Competition:

The **RCPIT Wings Club** actively participated in a **District-Level Project Competition** held on **11 March 2022** at **Shri Vile Parle Kelvani Mandal's Institute of Technology, Dhule**. The competition was organized in association with the **Directorate of Technical Education (DTE), Regional Office Nashik, Shikshan Maharshi Dadasaheb Rawal, and Government Polytechnic, Dhule**.

Students from various engineering institutes participated and presented innovative technical projects. Representing the **Electronics and Telecommunication Engineering Department**, **Mr. Om Rakesh Patil** and **Mr. Nitin Patil** showcased their project demonstrating strong technical knowledge, problem-solving ability, and practical application of engineering concepts.

Their project was highly appreciated by the expert panel, and they secured the **First Prize** in the competition. This achievement highlights the technical competence of the students and reflects the continuous efforts of **RCPIT Wings Club** in promoting innovation, teamwork, and experiential learning among students.

The event provided an excellent platform for students to enhance their technical skills, gain exposure to competitive project presentation, and interact with peers and experts from different institutions.



आर. सी. पटेल अभियांत्रिकीच्या कृषी मित्र-एंग्रीकल्चर ड्रोन ला प्रथम पारितोषिक

शिरपुर : आर. सी. पटेल
अभियांत्रिकीच्या कृषी मित्र-
एंग्रीकल्चर डोन ला प्रथम
पारितोषिक प्राप्त झाल्याची
माहिती संचालक डॉ. जे. बी.
पाटील यांनी दिली.

स्वातंत्र्याच्या अमृत
मोहातगीर्याची निमिषांनी डायरेक्ट
ऑफ टेक्निकल एज्युकेशन
नाशिक विभागा या शासकीय
पॉलिटेक्निक, धुळे यांच्या
संयुक्त विद्यमान अंश विले पार्ले
केळव्याची मंडळ अंश चाले
इन्स्टिट्यूट ऑफ टेक्नॉलॉजी
धुळे येथे नुकत्याच पार
पडलेल्या हिलहस्तरीय प्रकल्प
संपूर्ण महाविद्यालयाच्या
विद्यार्थ्यांना कृषि
एंग्रीकल्चर डौन ला प्रथम
क्रमांक पर्यायाने.

या सप्रेमसाठी नाशिक
विभागातून विविध
अभियांत्रिकी महाविद्यालयातून



२०० हून अधिक स्पर्धकांनी आपल्या प्रोजेक्टचा सहभाग नोंदवला होता. यात मुख्यत्वे पॉलिटेक्निक, अभियांत्रिकी, एम.बी.ए. आणि फार्मसी महाविद्यालयाच्या विद्यार्थ्यांनी तयार केलेल्या प्रकल्पांचा सहभाग होता. या स्पर्धेमागील उद्देश विद्यार्थ्यांमध्ये तंत्रज्ञानाबद्दलची सर्जनशीलता, प्रतिभा, नाविन्यता असे अनेक कौशल्ये पुढेढात करणे असं

हाता.आर. सी. पटेल
अभियानिकी महाविद्यालयातील
इलेक्ट्रॉनिक्स अँड
टेलिकम्युनिकेशन विद्यार्थ्याखेचे
द्वितीय पांतील विद्यार्थी ओम
पाटील, वैभव पाटील, नितीन
पाटील, अतुल पाटील यांनी
कृषिमित्र एग्रीकल्चर ड्रोन चे
सदरीकरण केले. या प्रोजेक्टला
प्रथम प्रातिष्ठिक मिळाले. सदर
ड्रोनने प्रदर्शनाच्या ठिकाणी
सर्वच दर्शकांना आकर्षित केले.

याचवेळी सादरीकरण वेळी महाविद्यालयाच्या विद्यार्थी समूहाने परीक्षकांना डोनाच्या प्रात्यक्षिकाद्वारे व चर्चेद्वारे प्रभावित केले. कृषिमंत्री एंणीकल्चर डोनाचा प्रालेक्टची उपयोगिता व महत्त्व पाहता यास मान्यवरांच्या हस्ते प्रथम पारितोषिक देऊन गौरविण्यात आले. महाविद्यालयाच्या इलेक्ट्रॉनिक्स अँड टेलिकम्युनिकेशन विभाग प्रमुख

माया विरहित ज्ञानका इति
मार्ग नीचोपर उन्नत-लोनीया
साहाय्याने पूर्ण करता
है. विद्यायाँचें या
योजनावर शिरार मजकूरके
सोसाटीरचें अध्वय आ.
अमरप्राई पदते, कायस्थ
पुणेरायें पदते, मजकूर
गणेशाल पंगरी, पतीकुळ
डां. के. बी. पाटील,
महाराष्ट्रका सोसाटीरचें. जे.
बी. पाटील, उपसंचालक डॉ.
प्रमोद नुवन, विभाग प्रमुख डॉ.
डॉ. निमिन पाटील, डॉ. जी. बी.
लक्ष्मी, डॉ. डॉ. एस. पाटील,
डॉ. पी. एस. मसरी, डॉ. एस. बी.
तेलने, डॉ. आर. बी. पाटील, टी.एम
एड फ्लेमिंग विभाग प्रमुख
डॉ. सिकेश जैन, जनसंपर्क
अधिकारी डॉ. प्रताप महान, सर्व
शिक्षक व शिक्षकता कर्मचारी
बीबी अभिनव केने.



सकल

पटेल अभियांत्रिकीच्या विद्यार्थ्यांकडून कृषिमित्र ड्रोन

शिरपूर ता. ३ :
आर. सी. पटेल अभियांत्रिकी
विद्यार्थ्यांनी कृषिमित्र अॅग्री-
ड्रोन तयार केले असून, ह्या
झालेल्या जिल्हास्तरीय
स्पर्धेत या उपकरणाने
पारितोषिक पटकावले.

स्वातंत्र्याच्या
महोत्सवी वर्षानिमित्त डा
ऑफ टेक्निकल एज्यु
नाशिक विभाग व श
पॉलिटेक्निक, धुळे
संयुक्त विद्यमाने श्री
पार्ले केळवणी मंडळ र
धुळे येथील इन्स्टिट्यूट
टेक्नॉलॉजीमध्ये जिल्ह
प्रकल्प स्पर्धा घेण्यात
नाशिक विभागातून

अभियांत्रिकी महाविद्यालयाच्या
दोनशे पेक्षा अधिक स्पर्धकांनी
सहभाग नोंदवला. पॉलिटेक्निक,
अभियांत्रिकी, एम.बी.ए. आणि
फार्मसी महाविद्यालयाच्या
विद्यार्थ्यांनी तयार केलेल्या
प्रकल्पांचा समावेश होता.

आर. सी. पटेल अभियांत्रिकी
महाविद्यालयातील इलेक्ट्रॉनिक्स
ॲंड टेलिकम्युनिकेशन विद्याशाखेचे
द्वितीय वर्षातील विद्यार्थी ओम
पाटील, वैभव पाटील, नितीन
पाटील, अतुल पाटील यांनी कृषिमित्र
ॲग्रीकल्चर ड्रोन तयार करून स्पर्धेत
सादर केले. प्रात्यक्षिक व उपयुक्तता
लक्षात घेऊन परिक्षकांनी त्यांची
प्रथम क्रमांकाच्या पारितोषिकासाठी
निवड केली. विद्यार्थ्यांना

महाविद्यालयाचे इलेक्ट्रॉनिक्स अँड टेलिकम्युनिकेशन विभाग प्रमुख व उपसंचालक डॉ. प्रमोद देवरे, सहयोगी प्रा. भूषण व्ही. पाटील यांचे मार्गदर्शन लाभले. विद्यार्थ्यांच्या यशाचे शिरपूर एज्युकेशन सोसायटीचे अध्यक्ष आमदार

अमरिशभाई पटेल, कार्याध्यक्ष
भूपेशभाई पटेल, उपाध्यक्ष राजगोपाल
भंडारी, माजी कुलमुख डॉ. के. बी.
पाटील, महाविद्यालयाचे संचालक
डॉ. जे. बी. पाटील, उपसंचालक
डॉ. प्रमोद देव्हे, परीक्षा नियंत्रक प्रा.
सुहास शुक्ल, विभाग प्रमुख प्रा. डॉ.
नितान पाटील, प्रा. जो. व्ही. तपकिरे
प्रा. डॉ. व्ही. एस. पाटील, प्रा. पी.
एल. सरोदे, डॉ. एस. व्ही. देसले,
डॉ. आर. बी. वाघ, प्रा. मिल्केश



शिरपूर : पटेल अभियांत्रिकीच्या विद्यार्थ्यांनी तयार केलेले कृषिमित्र ड्रोन. दुसऱ्या छायाचित्रात विजेत्या विद्यार्थ्यांसह संचालक डॉ. जे. बी. पाटील.

जैन, डॉ. प्रशांत महाजन यांनी कौतुक केले.

असा होईल उपयोग
विद्यार्थ्यांनी तयार केलेल्या
कृषिमित्र ड्रोनचा कृषी विभागासह

शेतकऱ्यांना आगामी काळात
शेतीसाठी मोठा उपयोग होणार आहे.
ड्रोनच्या मदतीने शेतकऱ्याला का
खर्चात व सुलभरीत्या मानवविरहि
शेतीचे सर्वेक्षण, फवारणी कर
येणे शक्य होणार आहे. ड्रोनमध

जीपीएस यंत्रणा असून, शेताच्या कोणत्याही कोपऱ्यात ते जाऊ शकेल. त्यात आणखी काही नवी वैशिष्ट्ये व क्षमता अंतर्भूत करण्यासाठी संशोधन करीत असल्याचे विद्यार्थ्यांनी सांगितले.



2. World Robotics Competition:



The **World Robotics Championship – Technoxian 2022** was held at **Indira Gandhi Stadium Complex, New Delhi (India)** from **21st to 22nd August 2022**. The championship is recognized as one of the largest international platforms promoting innovation, robotics, and emerging technologies among students and professionals.

RCPIT Wings club members successfully participated in this mega event with **Prof. Bhushan Vamanrao Patil** as a **Mentor** in the Technoxian 2022 World Robotics Championship. His role involved guiding and mentoring participants in robotics concepts, design thinking, and practical problem-solving approaches aligned with global engineering standards.

The event brought together teams from various countries, providing exposure to advanced robotics systems, competitive challenges, and real-world applications of engineering principles. Participation in this championship contributed significantly to professional development, knowledge enhancement, and understanding of contemporary trends in robotics and automation.

This achievement reflects a strong commitment to continuous professional development and highlights active involvement in international-level technical forums that promote innovation, research, and experiential learning in engineering education.

TECHNOXIAN

WORLD ROBOTICS CHAMPIONSHIP



THIS CERTIFICATE IS PRESENTED TO

BHUSHAN VAMANRAO PATIL

for his/her successful participation as Mentor in TechnoXian 2022,

held at Indira Gandhi Stadium Complex, New Delhi (INDIA)

from 21st -22nd august 2022



VICE PRESIDENT-AICRA

CEO-TECHNOXIAN

3. Drone Workshop- RCPIT, Shirpur

Drone Workshop for First-Year Students

A **Drone Workshop** was organized for **First-Year students of RCPIT, Shirpur** as part of the **Induction Programme**. The workshop aimed to introduce newly admitted students to emerging technologies and to create early awareness about applications of drones in engineering and real-world problem solving.

During the workshop, **Mr. Om Patil, Student Coordinator of the RCPIT Wings Club**, introduced **various aspects of drone technology**, including their **working principles, components, and operational features**, along with **practical applications** in fields such as surveillance, agriculture, mapping, inspection, and disaster management. students were introduced to the **basic concepts of drones**, including components, working principles, flight dynamics, and safety regulations. Live demonstrations and interactive sessions helped students understand the practical aspects of drone operation and its applications in areas such as surveillance, agriculture, mapping, and disaster management.

The workshop generated enthusiastic participation among first-year students and successfully motivated them to explore innovation-driven learning from the beginning of their academic journey. This activity supported outcome-based education by encouraging curiosity, technical interest, and hands-on exposure to modern engineering tools.

The workshop contributed positively to the overall objectives of the induction programme by bridging the gap between theoretical learning and practical engineering applications.





4. Startup Training & visit- to Anantrao Pawar College Of Engineering & Research, Pune.

Mr. Om Patil, Student Coordinator of the RCPIT Wings Club, conducted **Startup Training and an Industrial Visit** at **Anantrao Pawar College of Engineering & Research, Pune.** The program was organized with the objective of creating awareness about entrepreneurship, innovation, and startup culture among students.

During the training session, Mr. Patil explained the fundamentals of startups, including idea generation, problem identification, business models, funding opportunities, and the role of innovation in engineering. He also shared practical insights on converting technical ideas into viable startup ventures.

The industrial visit provided participants with exposure to real-world startup ecosystems, incubation facilities, and industry-academia collaboration practices. The activity helped students understand practical challenges, entrepreneurial opportunities, and the importance of skill development and teamwork. The program successfully motivated students to explore entrepreneurship and innovation alongside their academic learning.



Prof. Dr. Chetan Kolambe -Faculty from Anantrao Pawar College Of Engineering & Research, Pune has visited our startup in our campus for technical consultancy for Drone project

5. Startup Training & visit for: UAV training -In collaboration with KLS Gogte Institute of Technology. Belgaum, Karnataka.

Mr. Om Patil, Student Coordinator of the RCPIT Wings Club, conducted a **Startup Training and Industrial Visit on UAV Technology** in collaboration with **KLS Gogte Institute of Technology, Belgaum, Karnataka**. The program was organized with the objective of providing hands-on exposure to **Unmanned Aerial Vehicle (UAV)** technology and promoting startup and innovation culture among students.

During the training session, participants were introduced to the **fundamentals of UAV systems**, including drone components, flight principles, control mechanisms, safety regulations, and emerging applications of UAVs in areas such as agriculture, surveillance, mapping, and inspection. The startup-focused discussions emphasized opportunities in UAV-based solutions, entrepreneurship, and innovation-driven product development.

The industrial visit enabled students to interact with experts, observe practical UAV demonstrations, and gain insights into real-world applications and challenges in drone technology. The program enhanced students' technical knowledge, practical skills, and entrepreneurial awareness, motivating them to explore career and startup opportunities in the rapidly growing UAV domain.



Students from KLS Gogte Institute of Technology, Belgaum, Karnataka was visited DroniCulture Systems for UAV training (April 2022) & build moisture control UAV for different applications, In collaboration with KLS Gogte Institute of Technology. Belgaum.

6. Startup Training & visit: Government ITI College, Panvel

Mr. Om Patil, Student Coordinator of the RCPIT Wings Club, conducted **Startup Training and an Industrial Visit** at **Government ITI College, Panvel**. The program was organized with the objective of promoting **entrepreneurial awareness, innovation, and skill development** among students.

During the training session, Mr. Patil introduced the concept of startups, idea generation, problem identification, and the importance of innovation in technical education. He shared practical insights on entrepreneurship, career opportunities, and how technical skills can be transformed into viable startup ventures.

The industrial visit provided students with exposure to practical learning environments and industry-oriented skill development practices. The activity helped students understand real-world challenges, encouraged creative thinking, and motivated them to explore entrepreneurship and innovation as potential career paths.



7. UAV Pilot Training & Visit at Bose Institute, Kolkata, West Bengal

Mr. Om Patil, Student Coordinator of the RCPIT Wings Club, participated in a **UAV Pilot Training and Industrial Visit at Bose Institute, Kolkata, West Bengal**. The visit was organized with the objective of gaining advanced knowledge and practical exposure in **Unmanned Aerial Vehicle (UAV)** technology and pilot operations.

During the training, Mr. Patil was introduced to UAV pilot fundamentals, including drone flight principles, navigation, safety protocols, regulatory guidelines, and hands-on flight practices. The sessions also covered applications of UAVs in research, surveillance, mapping, and industrial inspection.

The industrial visit provided insights into ongoing research activities, advanced laboratories, and real-world UAV applications at Bose Institute. This training enhanced technical competence, practical skills, and understanding of emerging drone technologies, contributing significantly to professional and technical development in the field of UAV systems.



8. AVIATRON 1.0: Drone Fundamental Workshop

AVIATRON 1.0 – Drone Fundamental Workshop was organized for **engineering students** by the **RCPIT Wings Club** under the coordination of **Mr. Manas Lohar, Wings Club Coordinator**. The workshop aimed to provide foundational knowledge of drone technology and to create awareness about its engineering applications.

During the workshop, students were introduced to the **basic concepts of drones**, including UAV components, working principles, flight dynamics, safety measures, and regulatory aspects. The session also highlighted practical applications of drones in areas such as agriculture, surveillance, mapping, inspection, and disaster management.

The workshop witnessed active participation from students and successfully enhanced their understanding of emerging drone technologies. **AVIATRON 1.0** contributed to promoting innovation, technical curiosity, and hands-on learning among engineering students, aligning with outcome-based education objectives. The workshop was designed to introduce students to the essentials of drone engineering, combining theoretical understanding with practical, hands-on experience.

The sessions covered core concepts such as aerodynamics, stability control, flight mechanics, and component-level understanding of multirotor systems. Participants were guided through the complete assembly of a drone kit, including frame setup, motor orientation, ESC connections, flight controller calibration, and transmitter configuration. The workshop also included supervised flying sessions, enabling students to apply their learning in a real-time environment.

AVIATRON: Drone Fundamentals Workshop marked the first major technical training initiative conducted under RCPIT Wings. The workshop was designed to introduce students to the essentials of drone engineering, combining theoretical understanding with practical, hands-on experience.

The sessions covered core concepts such as aerodynamics, stability control, flight mechanics, and component-level understanding of multirotor systems. Participants were guided through the complete assembly of a drone kit, including frame setup, motor orientation, ESC connections, flight controller calibration, and transmitter configuration. The workshop also included supervised flying sessions, enabling students to apply their learning in a real-time environment.

Objectives:

- Establish foundational knowledge of drone systems
- Provide hands-on assembly experience
- Train students in basic troubleshooting and calibration
- Develop confidence in piloting multirotor drones
- Create awareness about safety standards and industry applications

Outcomes

The workshop successfully engaged multiple students, improved their practical skillset, and built confidence in drone operation. It also strengthened the identity of RCPIT Wings as a dedicated technical club capable of hosting structured and impactful training programs.



