

Drones for Architectural Scenarios

ARMELA REKA

POLIS University

KEJSI VESELAGU

POLIS University

ARTAN KACANI

POLIS University

GIUSEPPE DI SALVO

Independent Drone Pilot and Certified Instructor, Palermo

The workshop was a 5-day event where students engaged deeply in theoretical concepts and extensive hands-on practice to achieve proficiency in drone piloting. The primary objectives of the workshop were to offer a thorough understanding of drone structures, electronics, radio control usage, and the DJI Fly app. Practical sessions focused on flight training over city structures, video capture techniques, and collaborative video production within groups. The Key Learning Areas were the following: Comprehensive understanding of drone components. Participants delved into the intricacies of drone structures, gaining insights into the mechanics and functionality of key components. Electronics and radio control operations. In-depth exploration of the electronic systems and radio control operations, ensuring participants developed a robust understanding of the technology. Utilization of DJI fly app and automatic functions. Hands-on experience with the DJI Fly app and exploration of automatic functions, enabling participants

to master the technological aspects of drone piloting. Flight training on city structures. Practical flight sessions involved navigating drones through city structures, enhancing participants' skills in real-world scenarios. Video capture and collaborative production. Emphasis on video capture techniques and collaborative video production within groups, providing a creative outlet for applying piloting skills.

Safety and Protocol Emphasis

The workshop placed a significant emphasis on safety and protocols throughout its duration. Participants underwent a thorough preflight checklist and equipment inspection, guided through meticulous assessments of equipment, motor functionality, propeller conditions, and battery checks. This ensured that every aspect of the drone's readiness was scrutinized before flight. Emergency protocols were a focal point, providing participants with the necessary knowledge to

navigate unforeseen situations during drone operations. The workshop delved into these protocols, equipping participants with the skills and awareness required to handle challenging scenarios effectively. The importance of adherence to safety regulations and flight guidelines was underscored throughout the workshop. Emphasis was placed on crucial safety regulations, including flying in optimal weather conditions, maintaining line of sight, avoiding airports and main roads, refraining from flying above people, and adhering to specific altitude limits. These guidelines were instilled to ensure responsible and compliant drone operations. The workshop adopted an integrated learning approach, seamlessly blending theoretical knowledge with practical flight sessions. This approach allowed students to not only understand drone piloting concepts theoretically but also gain hands-on experience. The practical sessions were invaluable, enabling participants to familiarize themselves with the aircraft and significantly enhance their piloting skills. This experiential learning approach reached its pinnacle with the creation of documentaries, providing a practical application of the acquired skills. As an outcome of this comprehensive approach, participants left the workshop well-equipped with the confidence and expertise needed to navigate the complexities of drone piloting. The integration of theoretical understanding, practical experience, and a strong emphasis on safety regulations ensured a holistic and impactful learning experience, preparing participants for responsible and skilled involvement with unmanned aerial vehicles.

Methodology

The workshop embraced a variety of approaches to cater to diverse learning styles and ensure a comprehensive understanding of the subject matter. The following key components were utilized:

Interactive lectures and engaging discussions: in-depth and dynamic interactive lectures encouraged active participation, creating an environment conducive to critical thinking and knowledge retention. Facilitated discussions complemented lectures, providing a platform for students to delve deeper into the complexities of drone technology and its integration with architecture.

Hands-on simulations with cutting-edge drone equipment: participants were actively involved in practical, hands-on simulations utilizing state-of-the-art drone equipment. Emphasis was placed on real-world scenarios, allowing students to develop practical skills and a comprehensive understanding of drone operations.

Comprehensive field training sessions in diverse environments: outdoor training sessions were conducted in varied and challenging environments, enabling students to apply their knowledge and skills in different conditions. Field exercises focused on honing practical skills, problem-solving, and adapting drone operations to different architectural contexts. **Specialized documentary production workshops:** in-depth workshops guided students through the entire process of producing documentaries using drone footage, combining technical proficiency with creative expression. Participants gained hands-on experience

in storytelling through visuals, fostering a deeper connection between drone technology and architectural narratives.

Collaborative group activities and project work: group activities were designed to promote collaboration, teamwork, and problem-solving skills among participants. Collaborative projects provided students with the opportunity to apply drone technology to real-world architectural challenges, enhancing their practical understanding and teamwork abilities.

Ethical considerations explored through in-depth discussions: ethical discussions were integrated throughout the workshop, addressing the responsible and ethical use of drones in architectural practices. Real-world case studies were examined to provide practical insights into navigating ethical considerations in drone usage.

Continuous personalized feedback loop: a significant feedback system was implemented, ensuring a continuous and personalized guidance mechanism. Instructors and assistants provided timely feedback, addressing individual learning needs and fostering a supportive learning environment. The methodology aimed to create a holistic learning experience that not only equipped students with technical expertise but also nurtured creativity, ethical awareness, and collaborative problem-solving skills essential in the intersection of drone technology and architecture.

Conclusions

The culmination of the workshop was marked by an inspiring final session where students showcased their creativity and technical prowess by presenting their documentaries. This hands-on culmination highlighted the workshop's effectiveness, demonstrating the students' ability to translate their newfound knowledge into compelling visual narratives.



Workshop Process Image