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EXADRONE ACADEMY
PROFILE



Identity

ExaDrone is a project born from the collaboration between ENEA and METAPROJECTS within the ENEA Brasimone Research Centre, one of the most significant scientific hubs at national and international level.

ExaDrone Academy represents the first public ENAC-accredited structure for UAS pilot training and one of the most relevant entities in Italy for operational training in critical scenarios. At the same time, the Automation and Control Laboratory is dedicated to the research and development of advanced systems for UAS applications.

This integration between training, research and technological development makes ExaDrone a unique organization within the Italian landscape.



Mission & Role

The mission of ExaDrone is to provide high-level training aimed at preparing competent and responsible operators capable of working in complex environments, in compliance with the highest standards of safety and regulatory conformity.

Alongside training activities, ExaDrone also promotes technological development in the field of remotely piloted systems, contributing to the growth of professional skills and innovation in the UAS technology sector.

Through the integration of academic activities, scientific research and operational applications, ExaDrone positions itself as a national reference centre for advanced drone pilot training and for the development of innovative technological solutions in civil, industrial and security contexts.



How ExaDrone was established

The ExaDrone project originated from the collaboration between ENEA and METAPROJECTS, with the support and funding of the Emilia-Romagna Region, within the framework of the enhancement plan of the ENEA Brasimone Research Centre and the technological revitalization of the Tuscan-Emilian Apennines. Launched in 2019 to develop advanced technologies in the field of remotely piloted systems, the project integrates expertise in electronic engineering, mechatronics and aerodynamics, combining METAPROJECTS' industrial capabilities with the scientific excellence of ENEA laboratories.

In 2022, the new dedicated facility was inaugurated.

It hosts:

- ExaDrone Academy, an ENAC-recognized entity (ENAC.UAS-RE.085 ENEA) for drone pilot training
- The Automation and Control Laboratory, a research and development centre dedicated to the design of drones and advanced electronic systems for civil, industrial and security applications

Today ExaDrone represents a unique ecosystem integrating research, technological development and professional UAS training, positioning itself as a national reference centre for innovation and training in the drone sector.



Training



Open category

Open A1/A3 theoretical course
Open A2 theoretical course
Open A2 theoretical exam
Open flight practical course



Specific category

Specific STS theoretical course
Specific STS theoretical exam
UAS CRM course
Aeronautical Communications Management course
Specific STS-01 VLOS practical course
Specific STS-02 BVLOS practical course



Professional category

Photogrammetry and land surveying course
Thermography course
Precision agriculture course
SORA methodology course
Lawful use, authorizations and UAS regulations course
Dangerous & Good course
Radio communication for emergency and rescue operations course

Training path



Open A1/A3

Open A2

Specific STS

**UAS CRM
+
Aeronautical
Communications
Management**

**Specific STS-01
VLOS
and/or
Specific STS-02
BVLOS**

**Professional
course**

Services



Consulting

ExaDrone provides technical consulting services for professional operators, companies and public administrations intending to use drones in advanced operational contexts.

Activities include: preparation of operational manuals, support for ENAC authorization procedures, application of the SORA methodology (Specific Operations Risk Assessment) for operations in the Specific category, definition of operational and safety procedures. Thanks to the combination of regulatory expertise and engineering competencies, ExaDrone supports operators in the planning and management of complex UAS operations in compliance with European and national regulations.



Survey operations

ExaDrone also performs operational survey activities using UAS, employing specialized technicians and professional pilots. Our team carries out data acquisition missions for: infrastructure, monitoring, territorial surveys, technical inspections, operational support for public entities and companies.

Operations are planned according to structured operational procedures and carried out using drone platforms equipped with advanced sensors, ensuring high standards of safety, precision and reliability in data collection.



ExaDrone Academy

2025 Figures

59

Courses delivered

550+

Course participations

150

ENAC examinations (Open A2 / Specific STS)

20+

Complete training paths

420 hectares

dedicated flight field



Drone Competence Centre

The Drone Competence Centre of the Emilia-Romagna Region represents an innovative model of integration between public administration, scientific research and technological development in the field of remotely piloted systems.

The initiative, developed by the Emilia-Romagna Region in collaboration with ENEA, aims to create a regional competence infrastructure capable of supporting the use of drones in strategic sectors, including: civil protection, environmental monitoring, infrastructure management, agriculture, territorial security.

Within this ecosystem, ExaDrone Academy contributes to the training of UAS pilots and the development of operational competencies necessary for professional drone use within public administration.

Thanks to dedicated infrastructures, an extensive flight field and an advanced scientific environment, ExaDrone represents a concrete example of how research, training and technological innovation can converge to support institutions in the digital transformation of public services.

The Drone Competence Centre is therefore proposed as a replicable model at national level, capable of promoting the adoption of new aerospace technologies within public administrations and stimulating the development of specialized competencies across the territory.



Automation and Control Laboratory

The Automation and Control Laboratory, managed by METAPROJECTS at the ENEA Brasimone Research Centre, is an infrastructure dedicated to applied research, development and validation of advanced electronic technologies.

The laboratory integrates expertise in: embedded electronics, automation, radio frequency systems, multiphysics simulation, advanced sensing technologies, with the aim of designing and developing innovative systems with high technical complexity.

Activities range from: mechatronic and aerodynamic design of drones and UAV systems, development of sensors and electronic devices for industrial, environmental and scientific applications.

Thanks to the presence of laboratories, workshops and testing infrastructures, the laboratory is able to manage the entire technological cycle, from industrial research and prototyping to validation and industrial technology transfer.



METAPROJECTS
ELECTRONIC ENGINEERING RESEARCH



LIF LIDAR Drone for environmental monitoring

UAV system with laser-induced fluorescence optical sensor for contaminant detection.

Problem

Monitoring chemical spills and surface contamination in large environments requires rapid, non-invasive and highly precise solutions.

Solution

Development of a UAV platform integrated with a LIF LiDAR sensor for in-flight detection of pollutants through spectroscopic analysis.

Technical complexity

- Integration of a high-sensitivity optical payload
- Stabilization and vibration compensation
- Real-time data transmission
- Operational validation in real environments

Result

Demonstration system for advanced environmental monitoring, applicable in marine, industrial and civil protection contexts.





Gamma radiation monitoring drone

UAV system equipped with a gamma sensor for the detection of ionizing radiation.

Problem

Monitoring radiological contamination and verifying safety in nuclear or potentially contaminated areas requires tools capable of remote operation, reducing operator exposure and enabling rapid coverage of large areas.

Solution

Development of a UAV platform integrated with a high-sensitivity gamma sensor, capable of performing radiometric surveys in flight and generating radiation distribution maps for environmental monitoring and nuclear safety activities.

Technical complexity

- Integration of miniaturized and shielded radiometric sensors
- Calibration and stabilization of the sensor during flight
- Georeferencing of radiometric data
- Real-time data transmission and acquisition





UV-C drone for agri-food monitoring

UAV system using UV-C technology for phytosanitary treatment and crop sanitization in agriculture.

Problem

Agricultural crops are frequently exposed to pathogens, mould and biological contamination, which reduce product quality and yield. Traditional solutions based on chemical pesticides may have environmental impacts and require repeated applications.

Solution

Development of a UAV platform equipped with a UV-C irradiation system, designed for crop treatment and pathogen reduction directly in the field, enabling targeted, rapid and non-invasive interventions.

Technical complexity

- Integration of UV-C emission systems on a UAV platform
- Optimization of irradiation intensity and exposure time on crops
- Drone stabilization to ensure treatment uniformity
- Real-time operational monitoring and control





Part of our team



Paolo Tassin

CTO - Chief
Technical Officer
Exam Supervisor



Erik Tassin

Training Coordinator
Exam Supervisor
Drone Trainer



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Accountable Manager



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