



Erasmus+ Educational for Drone (eDrone)

(Project Number 574090-EPP-1-2016-1-IT-EPPKA2-CBHE-JP)

WP7, D7.1

Design of the exploitation plan

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Author(s)	Florin Nedelcuț
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1 Introduction / Foreword

Activities serving the **exploitation** and dissemination of results are the main way to present the work that has been done as part of the Erasmus+ project. Sharing results, lessons learned and outcomes and findings beyond the participating organisations enables a wider community to benefit from a work that has received EU funding, as well promotes the organisation's efforts towards the objectives of Erasmus+, which attaches fundamental importance to the link between Programme and policies.

It should be noted that the *eDrone* project was being carried out as part of an international programme, with both Programme Countries and Partner Countries, working together towards a higher habit of the lifelong learning. Our project is supporting also the European policies in the field of education and training, and is focused on the technologies related to the sectors of civil application of drones. As our **exploitation** results confirm, learners were encouraged and helped to engage with this kind of new experience, as long as this involvement into the sectors of civil application of drones, increased their specialist knowledge and also their chances to access the labour market.

Tab. 1 - eDrone project Consortium partners

Programme Countries		ID	Type	Country	City	
P1	University of Sannio	UNISANN	HEI	Italy	Benevento	CO
P2	B4Eng sas 5	B4ENG	SME	France	Toulouse	
P3	Université d'Evry	UNIEVRY	HEI	France	Evry	
P4	The Military University of Technology	MUT	HEI	Poland	Warsaw	
P5	Universitatea „Dunărea de Jos” din Galați	UNIGAL	HEI	Romania	Galați	
P6	Asociația UVS	ASUVS	NGO	Romania	Bucharest	
Partner Countries		ID	Type	Country	City	OED
P7	Civil Aviation Authority	CAA	Pub. Adm.	Moldova	Chișinău	
P8	Academy „Ștefan cel Mare” of Ministry of Internal Affairs (Police Academy)	ACAPOL	HEI	Moldova	Chișinău	
P9	Moldova State University	MSU	HEI	Moldova	Chișinău	OED 1
P10	State Agrarian University of Moldova	SAUM	HEI	Moldova	Chișinău	
P11	Academy of Public Administration	APA	HEI	Moldova	Chișinău	
P12	Armenian State University of Economics	ASUE	HEI	Armenia	Yerevan	
P13	National Polytechnic University of Armenia	NPUA	HEI	Armenia	Yerevan	OED 3
P14	Belarusian State Technological University	BSTU	HEI	Belarus	Minsk	OED 2
P15	Ilia State University	ISU	HEI	Georgia	Tbilisi	
P16	„Ivane Javakhishvili” Tbilisi State University	TSU	HEI	Georgia	Tbilisi	OED 4
P17	Belarusian State University	BSU	HEI	Belarus	Minsk	



1.1 Work-package WP7 - Exploitation activities

Two major *work-packages* of our *eDrone* project, respectively work-packages WP7 and WP6 are devoted to the acquired results from the *eDrone* **exploitation activities** and, respectively, to the **dissemination of those results**. Together, these two WPs are supported with almost a quarter of the project's total funding, in order to help them reach the following general **exploitation** and dissemination objectives of the *eDrone* strategy:

Spread as much as possible information about the eDrone project, making it accessible to professionals or institutions not directly involved in the project, so as to help them benefit from sharing the results obtained, the best practices and lessons learned and contribute to the resolution of similar problems in a broader institutional, regional and national context;

Gain acceptance and interest from the direct users/target groups for the delivered services;

Gain support from political decision-makers because the information towards decision makers is crucial to facilitate necessary political support and generate potential positive decisions concerning project's sustainability.

The effect of the activities being developed by the *eDrone* project was maximized by a sustained **exploitation** activity, supported also by an extended dissemination of results plans, so that *eDrone* project activities had impact on the immediate participants (the initial 17 Project Partners), and further on the next 18 Associated Partners, which adhered in the last three years to our project. Benefits to other stakeholders should also be considered in order to make a bigger difference and get the most impact from the project.

1.1.1 WP7 planned activities

Through its 8 activities, WP7 had to focus on the general & specific contributions made along the *eDrone* project by all the 17 partners, in order to implement the project's objectives, highlighting the contributions supplied so far.

The eight planned activities of the WP7 are:

- A7.1 – Design of exploitation plan;
- A7.2 – OED CIA promotion;
- A7.3 – Internship promotion;
- A7.4 – Promotion of start-ups;
- A7.5 – Public-private collaboration;
- A7.6 – Promotion and exploitation of the ICT platform;
- A7.7 – Proposal for recognition of the courses degree;
- A7.8 – Draft of a formal regulatory proposal.

For the design of the WP7 **exploitation** plan, the designated leader was P5-UNIGAL.



1.2 Report A 7.1 – Design of exploitation plan

Among the eight activities which constitute WP7, the report *A 7.1 – Design of exploitation plan*, coordinated also by P5-UNIGAL, is the most important of the work-package's deliveries, since it documents, for those interested, how the *eDrone* team managed to create a stable point of contact between sectors of civil drones' operators and the high-technology sectors of applications of drones, i.e. between – on one side – both the people interested in drones, together with the users already involved into sectors of civil applications of drones and – on the other side – their „machines” and potential drones applications.

Activity 7.1 (**Exploitation** plan) describes strategies and actions for the **exploitation** of the project outcomes. To transform *eDrone* into a successful project, it was necessary to put also in place a promotion strategy, able to lead to the following achievements:

The main didactic aim of *eDrone* project was to create, in the Partner Countries, specific schools or training centres (**Offices for Education for Drones - OED**) for **Vocational Education and Training (VET)**, in order to design and implement both courses and training activities, and to deliver to the attendees recognized certification, allowing new professionals to work using drones at different qualification levels.

- Creating, in the Partner Countries, specific schools or training centres (entitled Offices for Education for Drones - OED) to offer Vocational Education and Training (VET) in our project's specific field,
- Guaranteeing the right exploitation of OED' activities, in order to establish both the course program editions and training activities, and deliver to the attendees recognized certifications,
- A profitable usage of the ICT platform, in order to create a stable point of contact between sectors of civil application of drones' operators dealing with related high-technologies, allowing new professionals to work using drones at different qualification levels.

For our *eDrone* project, this means maximizing the potential of the activities co-funded by the ERASMUS+ Programme, so that their results will be used beyond the lifetime of the project, i.e. supporting the sustainability of the results.

Although generally one or two partners will take the responsibility for **exploitation** and/or dissemination coordination along the whole project, when it comes to implement the project and to build on the acquired results, the responsibility has to be shared among all partners.



2 Exploitation and dissemination plan of project - Components

2.1 Exploitation and dissemination of the acquired results

Results are the achievements of the project that received EU funding and their type varies depending on the type of project.

Exploitation is (a) a planned process of transferring the successful results of the programmes and initiatives to appropriate decision-makers in regulated local, regional, national or European systems, on the one hand, and (b) a planned process of convincing individual end-users to adopt and/or apply the results of programmes and initiatives, on the other hand.

On other side, dissemination is a planned process of providing information on the results of programmes and initiatives to key actors, which occurs as and when the result of programmes and initiatives become available.

Exploitation and dissemination processes are therefore distinct, but closely related to one another. However, very often it is difficult to make a clear distinction between these two areas. For this reason, planning an overall strategy framework covering both fields can be a more efficient way to make available the most of the resources. By reaching out to as many potential users as possible through effective **exploitation** and dissemination, this will help the Erasmus+ project to achieve a return on investment.

2.2 Goals and objectives of the exploitation and dissemination plan

When developing the **exploitation** and dissemination plans, it is fundamental to consider the goals and objectives of the project. These should link to the project aims to ensure that the methods and approaches used are appropriate for the Erasmus+ project and its results, as well as for the identified target audiences.

1. The first goal of exploitation and dissemination is to spread the results acquired during project implementation.

The second goal is to contribute to the implementation and shaping of national and European policies and systems. Beneficiaries should develop their own way of achieving this goal. For every project funded by the Erasmus+ Programme is also important to develop new ideas, both for exploitation and dissemination.

Such **exploitation** and dissemination goals we had in mind in the design of the plan for the **exploitation** of the project's results are:

- Raise awareness in the Consortium countries on the technological importance of innovative sectors of civil application of drones;
- Extend project's impact, through a thorough dissemination of the exploitation results (see § 5);



- Engage stakeholders and target groups (see § 2.3.2);
- Share solutions and know how (see § 3.2.1);
- Influence everyday practice and policy - through proposals for laws and regulations in the sectors of civil application of drones (see § 6.2);
- Develop new partnerships (see § 5.3.8).

2.3 Drafting the exploitation and dissemination plans

Usually, some of the project's results, of either **exploitation** or dissemination, are measurable, visible or tangible, (i.e. outputs) as evaluation or research studies reports, good practice guides or case studies are, while other results, considered intangible or less visible, (i.e. outcomes) are less quantifiable, as knowledge and experience gained during project activities, by the participants, learners or staff, are.

Tangible results include (among other measurable indicators):

- Practical tools or products, such as books and handbooks, curricula, e-learning tools (see § 5.3.4);
- Reports on the evaluation of results (see their list at § 1.1.1);
- Recognition certificates [14];
- Newsletters or information leaflets (see: § 5.3.5);
- Written material and audio-visual media (see: § 5.3.5, § 5.3.6).

Intangible results are often more difficult to measure. The use of interviews, questionnaires, tests, observations or self-assessment mechanisms may help to record this type of result.

Intangible results may include, for example, diverse skills, achievements and related personal experiences acquired by the project organisers and the participants to the activities during the project implementation:

- Knowledge and experience gained by participants, learners or staff;
- Increased skills or achievements;
- Improved cultural awareness;
- Better language skills.

The project results can then be used and exploited in the longer-term, for example via commercialisation, accreditation or mainstreaming. Not all parts of the project or results may be sustainable and it is important to view **exploitation and dissemination** as a progression that extends beyond the duration of the project, into the future and over the initial geographical borders of the partners' countries.



As a very important aim, the activity carried through out a project and its results should have a measurable impact effect on people, practices, organisations and systems covered by the implemented project.

2.3.1 Exploitation mechanisms

In terms of **exploitation** it is important to think about how results can make a difference to the project, end- users and peers, or to policy makers.

Exploitation mechanisms may include:

- Positive reputational effects for the participating organisations, both initial partners and associated partners (which joined the project during its development);
- Increased awareness on the project's theme or on a broader area of life or work;
- Increased financial or logistic support from the associated partners or other supporters or donors;
- Increased persuading on the project's theme implication, into policy and practice.

2.3.2 Involving target groups in activities

Involving target groups in activities will also help to maximise the use of the project's results.

Identifying target groups, both at different geographical levels (local, regional, national, European) and in the own field of the beneficiary (colleagues, peers, local authorities, other organisations leading the same type of activity, networks, etc.) is essential. Activities and messages have to be tailored appropriately taking into account audiences and target groups, for example:

- End-users of the project activities and deliverables;
- Stakeholders, experts or practitioners in the field and other interested parties;
- Decision-makers at local, regional, national and European level;
- Press and mass-media;
- General public.

The project plans should be flexible enough to allow target groups and other stakeholders to become involved during the different stages of the project. This will help to ensure that the project remains on track in terms of their needs. Their participation will also highlight the potential value of your project as well as help to spread the news to other interested parties throughout Europe.

2.3.3 Extend the impact of the implemented activities

eDrone project managed to extend the impact of the implemented activities and of exploitation results through a very good dissemination. One of the most simple indicators to measure this extended impact is the large number of Associated Partners our *eDrone* project got continuously (they are further presented in detail at § 5.3.8, in Tab. 38).



During the 3-years project duration, **24 HEIs and stakeholders, representing public institutions and private companies**, showed their interest to join our project and consecutively applied for. Some of them are even from countries outside the 8 ones of the *eDrone* Programme and Partner Countries, as Universum College from Kosovo is.

Tab. 2 - Associated Partners, according their countries of origin

Associated Partners	Country	City
1. AirWorker LLC	Armenia	Yerevan
2. INGO Armenia	Armenia	Yerevan
3. Instigate Robotics CJSC	Armenia	Yerevan
4. „ATS” Aero Technology and System	Belarus	Minsk
5. „BFUA” Belarusian Federation of Unmanned Aviation	Belarus	Minsk
6. „BSAA” Belarusian State Academy of Aviation	Belarus	Minsk
7. „BSATU” Belarusian State Agrarian Technical University	Belarus	Minsk
8. „RPUE” Precise Electro-mechanics Factory Republican Production Unitary Enterprise	Belarus	Minsk
9. „IEB NASB” V.F. Kuprevich Institute of Experimental Botany at the National Academy of Science of Belarus	Belarus	Minsk
10. Copter	Georgia	Tbilisi
11. „GCAA” Georgian Civil Aviation Agency	Georgia	Tbilisi
12. Athena SRL	Italy	Benevento
13. DPM Elettronica, s.r.l.	Italy	Foggia
14. Green Flame Tech, s.r.l.	Italy	Napoli
15. MES Consulting s.r.l.	Italy	Pomigliano D'Arco
16. Kolegji Universum	Kosovo	Prishtinë
17. „CDSESAI” Center for Socio-Economic Development and Innovative Entrepreneurship Support	Moldova	Chişinău
18. ICEVO Consulting s.r.l.	Moldova	Chişinău
19. Universitatea de Stat din Tiraspol	Moldova	Chişinău
20. Intreprinderea de Stat pentru Silvicultura Chisinau - Agenția Moldsilva	Moldova	Chişinău
21. HAWK-E	Poland	Katowice
22. „Henri Coandă” Air Force Academy of Brasov	Romania	Braşov
23. Universitatea Tehnică „Gheorghe Asachi” din Iaşi	Romania	Iaşi
24. Aviatraining Center CJSC	Armenia	Yerevan

2.3.4 Develop new partnerships/networks

As well as raising the profile of the organisation, **exploitation** and dissemination activities can often create new opportunities to extend the project and its results or develop new partnerships for the future.

As a project with international recognition, *eDrone* project helped also to the development of new partnerships and international knowledge networks. Most of the partners of *eDrone* project decided to value the know-how and human contacts acquired during this project and therefore



2.3.4.1 *ERASMUS+ KA2 - Knowledge Alliances*

Program title:	Erasmus+KA2: Cooperation for innovation and the exchange of good practices - Knowledge Alliances
Competition title and acronym:	Call: EAC/A05/2017
Deadline for applying:	28 February 2018 , 12:00 midday Brussels time
Proposal title and acronym:	Training Tools for Drone Operators / TT4DO
Proposal ID:	601143-EPP-1-2018-1-PL-EPPKA2-KA
Coordinating institution and the involved partners: (Note: the IDs of partners from our eDrone project are mentioned according their acronyms)	<i>Coordinator:</i> JSW Innowacje S.A. (Poland), <i>Partners:</i> MUT-P4 (Poland), UNIGAL-P5 (Romania), Tehnopro (Romania), UNISANN-P1 (Italy), Vasil Levski National Military University (Bulgaria), TSU-P16 (Georgia), MSU-P9 (Moldova), NPUA-P13 (Armenia), Luleå Tekniska Universitet (Sweden), Fundacion Tecnalia Research & Innovation (Spain)

Program title:	Horizon 2020, Science with and for Society
Competition title and acronym:	Open schooling and collaboration on science education, ID: SwafS-01-2018-2019
Deadline for applying:	02 April 2019 , 17:00:00 Brussels time
Proposal title and acronym:	Drone Modelling for Next Generation of Future Aircraft Designers / DM4AD
Proposal ID:	872150-1
Coordinating institution and involved partners: (Note: the IDs of partners from our eDrone project are mentioned according their acronyms)	<i>Coordinator:</i> UNISANN-P1 (Italy), <i>Partners:</i> NPUA-P13 (Armenia), Yerevan State University (Armenia), UAV Labs (Armenia), UNIGAL-P5 (Romania), ASUVS-P6 (Romania), MSU-P9 (Moldova), Andigor (Moldova), Saves Group (Moldova), Athena (Italy), DESA (Italy)



3 Exploitable Results

A result is a product or output which is produced by a given project and which may be quantified. Throughout the life of the *eDrone* project the following **exploitable results** were produced:

- **Educational.** The OED courses were held by teachers from Programme Country HEIs which have theoretical and practical knowledge in drone technologies. In parallel with this, local professors and staff, which are recruited in the Partner Countries, were involved in teaching and evaluation of attendants, according to the OED rules. Therefore, after the OED degree, professionals were able to share/apply the assimilated knowledge on their activities.
- **Economic.** Each Partner Country partner will provide a powerful base for setting up collaborations with local industry/private sector. Moreover, each partner will obtain a significant economic advantage from the new OED, due to the possibility of using their own (formed by the eDrone project) database of knowledge. Therefore, Partner Country professionals were advantaged by the possibility of obtaining a low cost (in terms of time and money) Vocational Education and Training (VET).
- **Social.** New professional fields could be inserted in the working place environment from industry/private sector and lifelong learning programs for drone technology. Also the non-operational specialists could be converted to reach different skills/abilities in order to hold the requirements of 21st century challenges upon the worldwide economy.

3.1 Definition of the expected impact and deliverables;

When it comes to express the expected results and impact on target groups (e.g. drone professionals, students and staff), on joint structures, on the capacity of your alliance to ensure excellence and inclusiveness in education and research, we may emphasize as most significant ones:

1. Long-term vision of the Consortium alliance; eDrone project universities' alliance was meant to achieve the objectives described in section 3 (see: § 3.2.1);
2. Determination and motivation level of the proposed key goals during the 3-year funding period. Together with the determination and motivation level of the proposed key goals, the long-term vision demonstrates the transformational potential of our alliance, in accomplishing the goals and objectives the exploitation and dissemination plans have (see: § 3.2.1);
3. Current level of cooperation between the full partners of the proposed Consortium alliance created with the purpose to accomplish this European ERASMUS+ project (see: § 4.1.2);
4. eDrone project added value and the transfer of the knowledge (both theoretical and practical) in drone technologies to the Partner Countries (see: § 4.1.1).



5. Innovative and transformative approach of the proposal. Key activities/actions during the funding period aim to bring about the quantum leap in institutional cooperation (see: § 1.1.1);

For all project types, reporting on the activities carried out to share the results inside and outside participating organisations is a must, being requested at final stage.

On the basis of its strategy and proposed general activities, our Consortium structured the work and activities of the *eDrone* project into the 8 work-packages, where their titles describe the specific objective of each work-package:

- WP1 - User Needs and State of Art Analysis,
- WP2 - Regulatory State of Art Analysis,
- WP3 - eDrone course deployment and set-up,
- WP4 - Offices for Education for Drones (OED) and technological arrangement set-up,
- WP5 - Quality Management,
- WP6 - Dissemination activities,
- WP7 - Exploitation activities,
- WP8 - Management activities.

The full list of concrete deliverables – outputs / outcomes (comprised by these 8 work-packages), leading to the achievement of the specific objectives of *eDrone* project is presented bellow (see: *Tab. 5*).

Tab. 5 - The deliverables of the eDrone project (Work Packages - WPs)

WP1	State of the art report on last generation technologies for drones and sensors supporting remote control; Workshops on Technology of Drones; Visits to enterprises; User needs document;
WP2	State of Art of drones laws in Programme and Partner Countries; Workshop on Law and User needs; Regulatory needs report;
WP3	Course program structure and content design; ECTS recognition of the course; Educational material for the course program; Lecturer selection of CTT; Enrolment process for CTT and for CIA; CTT and CIA Deployment;
WP4	Equipment purchase; ICT platform setup; Web content development; E- learning material for course program;
WP5	Design of the quality management system; Coordination of quality control; Quality monitoring; Project documentation; Final evaluation of the course; External audit;
WP6	Dissemination plan; Universities meetings; Dissemination workshops; Electronic publishing of news and reports; Participation to workshops and visits; Promotional material;



WP7	Design of exploitation plan; OED CIA promotion; Internship promotion; Promotion of start-ups; Public-private collaboration; Promotion and exploitation of the ICT platform; Proposal for recognition of the courses degree; Draft of a formal regulatory proposal;
WP8	Kick-off and Consortium meetings; Coordination activities; Financial management reports; Communication with ERASMUS+ agency.

3.2 Measurable and realistic objectives

As for structured cooperation projects such as Knowledge Alliances / Capacity-building projects, our *eDrone* **exploitation** and dissemination plan included **measurable and realistic objectives** and a **detailed timetable**. All the involved institutions, representing the 17 *eDrone* partners, started with relevant research or didactical staff, with significant skills in R&D, education and in drone related technologies.

The main didactic aim of *eDrone* project was to create, in the Partner Countries, specific schools or training centres (**Offices for Education for Drones - OED**) for **Vocational Education and Training (VET)**, in order to design and implement both courses and training activities, and to deliver to the attendees recognized certification, allowing new professionals to work using drones at different qualification levels.

3.2.1 Key goals

The *eDrone* project partners were interested in the development of:

1. OEDs as specific schools or training centres (Offices for Education for Drones - OED) for Vocational Education and Training (VET) in each Partner Country involved in this project; (eDrone project managed to organised a total of 4 OED, first one in Moldova, while the next ones in Armenia, Belarus, Georgia);
2. A Course Program for Training the Teachers (CTT), in Moldova, with the purpose to train the future CIA professors, coming from the HEIs of the Partner Country, on the use and development of the hardware and software technologies, essential in the different sectors of civil application of drones;
3. A Course Program (CIA) developed in every eDrone OED, for the Instruction of Attendees, which will train the attendees interested in acquiring new skills and competences from the sectors of civil application of drones.
4. Setup of strong relations with the industry/private sector by means of a complex ICT platform.

These schools and training centres took advantage of Programme Country Partners deepen and long-time experience in these fields. In fact, these schools were implemented by a sustained Technological Transfer of the competences from the European involved Programme Countries (Italy, France, Romania and Poland) to the involved Partner Countries (Moldova, Armenia, Belarus and Georgia).



The learning modules provide advanced knowledge concerning to the main areas of:

1. Hardware and software drone technologies,
2. Laws and regulatory items,
3. Civil application such as security and tracking, environmental monitoring (agriculture, forestry, photovoltaic monitoring) and video recording.

Besides these, CTT included specific content related to the involved Partner Country needs.

Specific attention was furthermore focused upon the involvement of participants and a real interaction with teaching staff. A dedicated section of the *eDrone* ICT platform was furthermore made available to participants, including *news*, *events*, *testimonials*, *gallery* and *video gallery*, *CTT courses*, *search* and *sharing of documents* (see: § 4.5). The teaching strategy was also completed by a constant monitoring of the learning achievements through on-going assessment.

In order to provide common procedures to guarantee the academic recognition of the CIA, in all the Partner Countries, such recognition procedures were designed entirely following the requirements of the **ECTS** (the **E**uropean **C**redit **T**ransfer and **A**ccumulation **S**ystem) (see: report A7.7 [14], § 4.3).

The recognition of the credits was based on the student workload required to achieve the objectives of each course of the program, in terms of the learning outcomes and competences to be acquired, in relation to the total quantity of work necessary to complete the CIA course successfully. A Diploma Supplement was designed to provide a standardized description of the nature, level, context, content and status of the master.

The Partner Country institutions gave their specific contributions in the design and in the local implementation of the didactic methodologies, as well as in the organization and deployment of the educational contents necessary for ICT platform.



3.2.2 Measurable impact indicators – on short and long term

The measurable impact indicators which were proposed by the original *eDrone* proposal may be either on short or on long term, as seen in the following tables.

3.2.2.1 Overview of short term impact indicators

Tab. 6 - Short term impact quantitative indicators

Possibility to access to new distance training contents and activities for professional training and updating in Drone technologies with specific regards to technological competencies					
Target groups/ potential beneficiaries	Short term impact quantitative indicators	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Professionals in drone technology field	Number of users accessing <i>eDrone</i> system functionalities (courses users, LMS users)	79	82*	30	56
	Number of the different application sectors from where came the users of the applications and functionalities of <i>eDrone</i> systems; see below the <u>description of the different application sectors with their number of users</u> (see Tab. 7)	12	8	8	12

* including 39 bachelor students and 10 master students

The different application sectors from where came the users of the applications and functionalities of *eDrone* systems are presented in the following table (Tab. 7).

Tab. 7 - Users of *eDrone* systems per Application sectors

Application sectors	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU	TOTAL
Academia	7	0	0	0	7
Academia students: Bachelor students	0	39	0	40	79
Academia students: Master students	0	10	0	0	10
Agriculture	13	0	4	2	19
Archaeology	2	0	0	2	4
Cadastre	8	0	3	0	11
Construction	1	7	0	0	8
Customs security	13	0	0	0	13
Drone personal use	6	0	0	3	9
Drone technology	2	9	0	0	11
Environment	0	0	5	2	7
Fire-fighting	0	0	2	0	2
Forestry	0	5	0	2	7
Geology	0	0	2	0	2
Hydraulics, hydraulic engineering	0	0	6	0	6
Individuals interested in drone personal use	0	1	0	3	4



Application sectors	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU	TOTAL
Logistics	2	0	1	0	3
Mass media	2	2	0	0	4
Meteorology	1	0	0	2	3
Public security	18	4	0	0	22
Public services	3	4	0	0	7
TOTAL eDrone project CIA students	78	81	23	56	238

3.2.2.2 Overview of long term impact indicators

Tab. 8 - Creation of "new jobs" in the drone activities fields

Creation of "new jobs" in the drone activities fields (based on more technological skills in using last generation sensors and apparatus for drone applications) and also in improving drone technology effectiveness in Region 2

Target groups or potential beneficiaries	Long term impact quantitative indicators	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Professionals in drone technology field, from Economy / Society	▪ Total number of users accessing ALL the applications and functionalities of eDrone systems;	15 53	21 51*	15 24	40 16
	▪ Number of the workers involved in the training activities (via CIA);	15 47	21 50*	10 17	16
	▪ Number of the professional interested in the use of the proposed distance learning opportunities (via LMS);	15 47	21 50*	45 70	56

* including 39 bachelor students and 10 master students

Tab. 9 - Reduction of the gap of missing people working into the drone technology field

Reduction of the gap of missing people working into the drone technology field in Region 2

Target groups or potential beneficiaries	Long term impact quantitative indicators	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Professionals in drone technology field, from Economy / Society	▪ Number of users accessing the eDrone system functionalities;	15 53	21 51*	12 18	80 56
	▪ Number of the workers involved in the training activities;	15 47	21 50*	8 10	16
	▪ Number of the professional interested in the use of the proposed distance learning opportunities;	15 47	21 50*	35 50	15
	▪ Number of people who found a job or improved their position thanks to the recognition of the course's degree provided by the CIA course;	15 47	21 50*	35 50	5
	▪ Feedback reports from presentation meetings, presentations for mass-media and interested groups;	10 27	17 8	6 5	6

* including 39 bachelor students and 10 master students



Tab. 10 - A common e-learning environment

A common e-learning environment for share best practices and improve common learning methodologies and consequently to improve the standardization into drone technology training field

Target groups or potential beneficiaries	Long term impact quantitative indicators	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Professionals in drone technology field, from Economy / Society	▪ Total number of users accessing ALL the applications and functionalities of <i>eDrone</i> systems;	15 53	21 50*	22 28	20 36
	▪ Number of the professional interested in the use of the proposed distance learning opportunities (via LMS);	15 47	21 51*	30 65	20 36

* including 39 bachelor students and 10 master students

3.2.3 Logical Framework Matrix (LFM)

3.2.3.1 The main objective of the eDrone project

What is the overall broader objective, to which the project contributes?

- The main objective of the *eDrone* project is to define a learning environment to deliver more opportunities to access new competences related to the drone activities and jobs. These new competences refer in particular to the use of advanced ICT solutions for the drone technologies that may go a long way towards the goals and priorities in terms of optimization of the development of ICT.

3.2.3.2 Wider Objective of the eDrone project

Indicators of progress:

What are the key indicators related to the wider objective?

- Deploying of the course on the use and development of advanced sectors of civil application of drones. Setting up of the OED (**O**ffices for **E**ducation for **D**rones) that will constitute an international network of qualified support for technology adoption and development in drone technology fields, thus linking different Region 2 institutions (in our case: Moldova, Armenia, Belarus and Georgia) that connected with each other and shared advancements among them.

How indicators were measured:

What are the sources of information on these indicators?

- Positive feedback from industry/private sector of economic activities related to students internships on research project of common interest; (see A7.6 – Promotion and exploitation of the ICT platform (deliverable) [13])
- Utilization of the ICT platform of *eDrone* project;
- Organized workshops;
- Recognition of the course's degree.



3.2.3.3 Specific Project Objective/s

Specific Project Objective/s:	<p><i>What are the specific objectives, which the project shall achieve?</i></p> <ul style="list-style-type: none"> ▪ <i>eDrone</i> is motivated to solve some uncovered issues in the educational and professional system of the Partner Countries such as the lack of availability of an Educational Programme covering the use of drone in several application fields especially for professional activities and of one stable institution for the management of the new knowledge, methodologies and technologies in each Partner Country. ▪ The specific objectives of <i>eDrone</i> project are to: <ul style="list-style-type: none"> i. <i>produce a systemic impact on training provision in order to foster its relevance for the above described activities;</i> ii. <i>overcome the skills mismatches and shortages in the defined sectors.</i>
Indicators of progress:	<p><i>What are the quantitative and qualitative indicators showing whether and to what extent the project's specific objectives are achieved?</i></p> <ul style="list-style-type: none"> ▪ Adopting advanced ICT solutions for the drone activities. ▪ Number of students which degree the course program from the first edition (the pilot edition). ▪ Adoption of ECTS credit system for the course programme. ▪ Number of OED implemented. ▪ Promotion of the new start-up enterprises created. ▪ Conventions and collaborations among public universities and industry/private sector about projects of common interest in the drone technology field.
How indicators were measured:	<p><i>What are the sources of information that exist and can be collected? What are the methods required to get this information?</i></p> <ul style="list-style-type: none"> ▪ Adopted models and good practice examples from EU; ▪ Reports; ▪ Contracts; ▪ Conventions; ▪ Internship agreements



3.2.3.4 Deliverables - outputs (tangible) and Outcomes (intangible)

Deliverables - outputs/outcomes	<p>The list of concrete deliverables - outputs/outcomes (grouped in work-packages), leading to the specific objective/s:</p> <ul style="list-style-type: none"> WP1 State of the art report on last generation technologies for drones and sensors supporting remote control; Workshops on Technology of Drones; Visits to enterprises; User needs document; WP2 State of Art of drones laws in Programme and Partner Countries; Workshop on Law and User needs; Regulatory needs report; WP3 Course program structure and content design; ECTS recognition of the course; Educational material for the course program; Lecturer selection of CTT; Enrolment process for CTT and for CIA; CTT and CIA Deployment; WP4 Equipment purchase; ICT platform setup; Web content development; E- learning material for course program; WP5 Design of the quality management system; Coordination of quality control; Quality monitoring; Project documentation; Final evaluation of the course; External audit; WP6 Dissemination plan; Universities meetings; Dissemination workshops; Electronic publishing of news and reports; Participation to workshops and visits; Promotional material; WP7 Design of exploitation plan; OED CIA promotion; Internship promotion; Promotion of start-ups; Public-private collaboration; Promotion and exploitation of the ICT platform; Proposal for recognition of the courses degree; Draft of a formal regulatory proposal; WP8 Kick-off and Consortium meetings; Coordination activities; Financial management reports; Communication with ERASMUS PLUS agency.
Indicators of progress:	<p>What are the indicators to measure whether and to what extent the project achieves the envisaged results and effects?</p> <ul style="list-style-type: none"> Realization of training activities about innovation systems in drone technology field; Setting up of a ICT web platform for educational materials and database for regular dialogue, dissemination, internationalization and exploitation of education-innovation-research synergies; Realized internships based on developed models; Educational material; Project promotional materials; Seminars, meetings, workshops; Various project reports (management, quality assurance).
How indicators were measured:	<p>What are the sources of information on these indicators?</p> <ul style="list-style-type: none"> Number of university mentors trained for the activities of the OED; Number and type of organized seminars, conferences, workshops; Material of specific training courses – innovation & knowledge transfer in drone technologies; Number of participants of the training courses; Number of realized internships; Number of web portal visits; Number of registered users for the access to web services (students, enterprises and others); Number of staff trained for the OED; Reports from presentation meetings, presentations for media and interested groups; Quality control and management reports; WEB news about the project; WEB articles Recognition of the course's degree.



<p>Inputs:</p>	<p><i>What inputs are required to implement these activities, e.g. staff time, equipment, mobility, publications etc.?</i></p> <ul style="list-style-type: none"> ▪ WP1 Staff time needed for the development of planned activities; Partner staff mobility according to the scheduled activities; Printing of dissemination material (brochure, informative sheets, etc.) which are necessary for the workshops. ▪ WP2 Staff time needed for the development of planned activities; Partner staff mobility according to the scheduled activities; ▪ WP3 Staff time needed for the development of planned activities; Partner staff mobility according to the scheduled activities; Printing of the educational materials. ▪ WP4 Staff time needed for the development of planned activities; Equipment purchasing for Partner Country universities necessary for the setup of ICT platform, didactical laboratories and OED; Partner staff mobility according to the scheduled activities for the technological arrangement setup. ▪ WP.5 Staff time needed for the development of planned activities; ▪ WP.6 Staff time needed for the development of planned activities; Partner staff mobility according to the scheduled activities; Printing of dissemination material; ▪ WP.7 Staff time needed for the development of planned activities; ▪ WP.8 Staff time needed for the development of planned activities; Partner staff mobility according to the scheduled activities; Printing and publishing of the dissemination material for: kick-off and consortium meetings.
<p>Activities:</p>	<p><i>What are the key activities to be carried out (grouped in work-packages) in order to produce the expected results?</i></p> <ul style="list-style-type: none"> ▪ WP1 - User Needs and State of Art Analysis ▪ WP2 - Regulatory State of Art Analysis ▪ WP3 - <i>eDrone</i> courses deployment and set-up ▪ WP4 - OED and technological arrangement set-up ▪ WP5 - Quality Management ▪ WP6 - Dissemination activities ▪ WP7 - Exploitation activities ▪ WP8 - Management activities <p><i>In what sequence the key activities (grouped in work-packages) had to be carried out in order to produce the expected results?</i></p> <ul style="list-style-type: none"> ▪ The planned sequence is described in the work-plans for years 1, 2, 3 (See: Annex 2).



4 eDrone project exploitation - specific results

4.1 OED - Offices for Education for Drones

4.1.1 European added value

The main objective of *eDrone* project is to promote knowledge and technology transfer from 4 Programme Countries professionals and stockholders to professionals and stockholders of the 4 Partner Countries involved, by means of the transnational collaboration net, in the frame of Erasmus+, who can reach better the generous objectives than developing these activities on their own. For these reasons, results cannot be achieved only with the help of regional, national or local funding and Erasmus+ was the best solution for this.

The key goal of the *eDrone* project was to create – in the involved Partner Countries – a total of **4 OED for VET**, in order to define, courses and training activities that deliver recognized certification allowing involved professionals to work using drones at different levels.

Under the coordination and supervision of P1-UNISANN, our *eDrone* project implementation managed to empower and enforce this main objective of the project and supporting the widespread at international level, in the ERASMUS+ partner Countries, of the specific innovative curricula with technological competencies in the use of aerial drones for civil applications. The expected results of our *eDrone* project aimed to easy the following:

- Reduction of the lack of professionals in this field, offering more opportunities of specialized education training,
- Set-up of a lifelong learning system, based on an innovative distance learning environment based on theoretical and experimental contents specifically related to the use of drones.

By means of the envisioned OEDs, *eDrone* project managed to:

- Set an innovative curricula,*
- Adopt a distance learning approach,*
- Implement the use of a multi-language system, will make available for all Partner Countries new curricula, didactic methodology and contents, in order to start up standardization in the field of the use of drones for civil applications, with specific technological competencies.*

4.1.2 Cooperation among Consortium partners

The Consortium is composed of a positive mix of partners, which disposed - *a priori* - of different skills and knowledge, thus creating a favourable synergy within the *eDrone* project, trough cooperation for a high level transfer of knowledge and technology across Europe:

Programme Countries partners (Italy, France, Romania and Poland) lead development of:



- Courses to train the future professors of the 4 planned OED operating into the Partner Countries,
- Organization of the 4 planned OED,
- Realization of the eDrone project ICT platform.

Programme partners were also involved directly in the activities related to the development of the infrastructure for the OED deployment and the production of the educational material.

Partner Country partners (Moldova, Armenia, Belarus and Georgia) were responsible of the deployment of the OED based on local educational resources from the involved universities.

In the same time, Partner Countries were highly interested both in:

- Modernization and internationalization of their national technical educational systems, by starting an international cooperation for a continuous improvement,
- Creation of Offices for Education for Drones, to help the development and dissemination of specific competences in the sectors of civil application of drones among professionals.

The Programme Countries brought into this project their competencies and experiences already acquired in the sectors of civil application of drones. That's why lead organization for the definition of the OED course contents and their setup was assumed by the HEI of P3-UNIEVRY (from France), while the other related activities involved all the rest of the Consortium Countries, coordinated by the 4 Programme Countries.

All the Consortium HEIs and Associations participated to the definition and preparation of the educational material for the courses and to the coordination of the Lecturers for the CTT courses.

Moreover, Partner Country HEIs and associations contributed to the recognition of the OED course program in terms of ECTS credits, and to the translation of the education material in all the respectively Partner Country languages.

P9-MSU together with P1-UNISANN had to coordinate the ICT support activities. Each Partner Country HEIs was responsible for purchasing the needed hardware, software and drone equipment. For the coordination of the activities related to the setup of the OED and technological arrangement, within WP4 work-package, the coordinator/responsible was P9-MSU.

On their turn, OED Partner Country HEIs (P9-MSU, P13-NPUA, P14-BSTU and P16-TSU) were responsible for purchasing equipment in the early stages of the OED under their liability.

Overall, P1-UNISANN, together with the rest of the Programme Countries partners, supported the definition of protocols and rules along the *eDrone* project duration.

Activities scheduled in the exploitation plan were first prepared in English language, as the language of the *eDrone* project. Consecutively, they were entirely delivered in the 4 Partner Country languages, and this is why most of the related activities relied on the Partner Countries, having P1-UNISANN as project Coordinator. Staff from Programme Countries had to travel to



Partner Countries in order to give their full support to the planned exploitation activities of the newly created OED.

In fact, these 4 OED were shaped according with a model of *Technological Transfer of the Competences* from Programme Countries to the Partner Countries. From the didactical point of view these OED, in order to easy the training activities of the professional, the didactical activities were fully supported by distance learning technologies, backed up by a complex ICT platform.

The main objectives of *eDrone* project (as shown at § 3.2.3.3) are to: (i) produce a systemic impact on training provision in order to foster its relevance for the above described activities; (ii) overcome the skills mismatches and shortages in the defined sectors.

All *eDrone* project HEIs were involved in providing theoretical competences for the sectors of civil application of drones, as follows:

- P4-MUT (from Poland), P5-UNIGAL (from Romania), together with the P2-B4Eng (from France) and P7-CAA (the Civil Aviation Authority from Moldova), provided the necessary avionics competences.
- P10-SAUM, P8-ACAPOL (Academy „Ștefan cel Mare” of Ministry of Internal Affairs - Police Academy) and the P11-APA (Academy of Public Administration), all of them from Moldova, provided competences concerning the use of drones for civil applications.
- We have to underline here the foremost contribution of the partner P9-MSU (Moldova State University) which was the sole responsible for the coordination of WP4, the specific work-package devoted to OED and technological arrangement set-up, working on the definition of tasks and activities of the Offices for Education for Drones. This partner, P9-MSU, was also responsible for general procedures of purchasing equipment needed to carry out the OEDs activities in the early stages. Nevertheless, MSU supported the definition of protocols and rules that OED have to comply with since its cooperation was required in the OED setup.
- Besides this, all *eDrone* project partners, including those of Armenia, Belarus and Georgia, were involved in the development of the work-packages WP1 and WP2, concerning the User Needs Analysis, together with the State of Art and the Regulatory aspects Analysis.

4.1.3 Summary of the OED quantitative indicators

4.1.3.1 OED - Hardware / Equipment

Tab. 11 – *OED Hardware Equipment funded from the eDrone project budget*

<i>OED Hardware / Equipment</i>				
Total value – (Euro) – funded from the <i>eDrone</i> project budget	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Drone and drone applications equipment	35,559.83	26,480.00	25,826.00	33,022.82
Teaching and didactical equipment	14,304.43	15,770.00	-	9,411.81



2 (two) Tablets	Samsung Galaxy Tab S2 9.7
4 (four) computers for work in classroom	ACER Nitro 50-600 with 27" Big Screen Monitors BenQ GW2765HE QHD 1440P IPS LED, NVIDIA GeForce 750M GPUs

Tab. 15 - OED 1 – Drone and drone applications equipment funded from the eDrone budget

Item	Description
Flight controller	Ardupilot Mega 2.6-2.8: Accelerometer, Magnetometer, Barometer, GPS, compass, microSD slot or DataFlash chip on board
Frame	F450 frame: 4 motors, D=450-500mm, m=250-400gr.
Arduino Starter Kit	Kits for building drone projects
2 (two) Multicopters	DongYang D800-X4, RC
Ultrasonic Range Finder	HC-SR04 Ultrasonic Range Finder, Ultrasonic distance sensor
Quad-Copter	24 XK Allen X250 quad-Copter 250 Racer (Mode2) 2.4GHz Transmitter, LiPo battery
Brushless Motor	KV 2000, Idle current 1A, m=30-40gr.
ESC	Con. Cur = 25-30A, programming card, m=8-15gr.
Propellers	R=8", carbon fibre
Transmitter	16 channels, USB, card slot, 2.4 GHz
Receiver	5 Ghz, m=6gr.
Accumulators/batteries	3S (11.1V), 2000mAh; Phantom 4 Series Battery 15.2V 5350mAh, Intelligent Flight Battery for: DJI Phantom 4, DJI Phantom 4 Pro, DJI Phantom 4 Pro V2.0, DJI Phantom 4 Advanced Drone, Li-Polymer
Charger	Out: 0.1-6A, 2-20V, Temp. sensor, 10 charger profiles
Wireless telemetry link	433mHz
Other laboratory accessories	Cables, soldering station, solder wires, pliers, screwdriver, mechanical nuts, washers, screws, boards for prototyping
3D printer	DaVinci 3D Printer 1.1 Plus, WIFI, camera monitoring, SLA/ FDM, 200x200x200 mm3, Layer 0.1mm
3D scanner	3D scanner Ciclop Estop Laser
3D printer filament	1.75 mm PLA/ABS/PET or photopolymers
Camera	GoPro HERO compatible camera, HD FPV 1080p
Multispectral camera	Multispectral survey camera - Survey 3W
Infrared camera FLIR camera	FLIR Vue Pro R
Laser scanner Phoenix aerial systems	LiDAR 3D mobile scanner, RP LiDAR A3
Environmental monitoring platform	Flying laboratory SOWA, model SmartCity SOWA, environmental monitoring platform
Other sensors platform	Environment monitoring sensors set
Professional drone	DJI Phantom 4 Pro drone
Drone bench	Drone bench for drone testing DronesBench Index (IDB)

Tab. 16 - OED 1 – Software funded from the eDrone project budget

Item	Description
Pix4Dmapper Professional drone-mapping	Creates maps from images taken by drones: Pix4D drone mapping & photogrammetry software tools with a flight app, desktop, and cloud platforms,



Associate Partners



	perpetual software license
Flight simulation software	Flight simulation of different drone models and in different weather and landscape conditions

Tab. 17 - OED 1 – OED Courses facilities

Item	Description
Handbook “Education for Drone”	<i>Educație pentru drone</i> - Romanian language, Note (suport) de curs (ISBN 978-9975-142-85-4) Natalia Nedeoglo, Corneliu Rotaru, Anton Danici [et al.]; coord.: Pasquale Daponte, Florentin Paladi, Tatiana Bulimaga. Chișinău: CEP-USM, 2019. 330 p.

During September 2017 - June 2018, in order to support the development of the OED facilities which were funded from the *eDrone* budget, MSU provided the following facilities on his own. On this purpose, a suitable classroom (no. 429/4) has been designed and completely renovated, and then was supplied with all needed furniture, as full support, from the MSU institutional financial resources.

Tab. 18 - OED 1 – Facilities provided by the OED High Education Institution

Item	Description
PVC construction, LAN, Security and alarm system, Electrical network, Water and sewage utilities	OED and separate space for the <i>eDrone</i> Laboratory in the OED
OED Classroom and <i>eDrone</i> laboratory Furniture	For laboratory and classroom use by students and staff
Air conditioning device	For laboratory and classroom use
Window blinds	For laboratory and classroom use
MOODLE platform and resources	For students and teachers use
CIA courses national accreditation fees already paid to the ANACEC	Fees for the national accreditation of the CIA courses

4.1.4.2 OED 2 – BSTU (Belarusian State Technological University, Minsk)

*Tab. 19 - OED 2 – OED teaching and didactical equipment funded from the *eDrone* budget*

Item	Qty	Description
PC	4	N-tech PC
Server	1	Server
UPS	5	Uninterruptible power system
Monitor	5	Monitor
Information panel	1	Information panel
Tablet	3	Tablet
Laptop	1	A laptop with a licensed operating system complete with a bag, a computer headset and a mouse
AIO multifunctional	1	Multifunction device
Router	1	Wireless router
Switch	1	Switch
External HDD	2	External hard drive
External DVD	1	External DVD drive



Tab. 20 - OED 2 – Drone and drone applications equipment funded from the eDrone budget

Item	Qty	Description
Quad-copter	5	Quad-copter
Drone accumulators	12	Accumulators
Camera	1	Multispectral camera

Tab. 21 - OED 2 – Software funded from the eDrone project budget

Item	Description
Drone applications Software	License for software for processing data received from a drone (quad-copter)
	License for drone training software (quad-copter)

Tab. 22 - OED 2 – OED – Courses facilities

Item	Qty	Description
Courses facilities	1	Magnetic whiteboard with consumables x 1
	*	Electrical wires and wiring accessories, cables, adapters and connectors
	*	Office Supplies and Consumables

*Non-specified quantities

Tab. 23 - OED 2 – Facilities provided by the OED High Education Institution

Item		Description
Item	Qty	Description
OED Classroom and <i>eDrone</i> laboratory furniture & facilities	2	Office desk
	4	Desk
	6	Office chairs
	4	Chairs

4.1.4.3 OED 3 – NPUA (National Polytechnic University of Armenia, Yerevan)

Regarding the teaching and didactical equipment funded from the eDrone budget, for OED 3 – NPUA they had no such equipment funded directly from the eDrone budget. Instead, they focused mostly on drone and drone applications equipment.

Tab. 24 - OED 3 – Drone and drone applications equipment funded from the eDrone budget

Item	Qty	Description
Charger	2	Charger ISDT 600 Watt
Remote control	2	Remote control -Futaba 14 SG
Antenna / Data transmitter	2	Dragonlink Antenna (assuring constantly receiving information)
Receiver	4	Dragonlink Receiver
Autopilot Board	3	Cube autopilot Carrier Board
Autopilot Board	3	Cube autopilot Mini Board - Pixhawk 2.1 Cube not Included – Board only
Autopilot	6	Cube autopilot - Pixhawk 2.1 Cube Flight Controller
Video transmitter/receiver	2	Video transmitter – Receiver HD
Gimbal + Controller	2	Gimbal + Controller + Camera HD



Item	Qty	Description
Motor	30	Motor T-Motor U3
ESC	30	ESC ALPHA 40A LV
Propeller	20	Propeller- T-Motor 12" Pair Carbon
Nano Quadcopter Kit	10	Crazyflie 2.0 Nano Quadcopter Kit
RC	10	RioRand Crazyradio 2.4Ghz nRF24LU1+
Multicopter	1	Yuneec H920 + 18x Zoom Camera gimbal
Raspberry Pi Kit	2	Raspberry Pi3+
Frame	3	Quad Frame
Frame	3	Hexa Frame
Joystick	2	Joystick for Drones
AI Developer Kit	2	Nvidia JETSON NANO
Multicopter	1	Yuneec typhoon H
Educational ground-vehicle	4	DJI RoboMaster S1, Gimbal 2 axes, 16MP, 2560 x 1080, 30p

Tab. 25 - OED 3 – Software funded from the eDrone project budget

Item	Description
Open-source software tools	Open-source drone mapping & photogrammetry software tools, perpetual license

Tab. 26 - OED 3 – OED Courses facilities

Item	Qty	Description
Monitor	1	Dell P2715Q 27" Monitor
3D Printer	1	FabPro 1000 Full 3D Printer
CO2 Laser cutter	1	CO2 Laser cutter
Notebook	2	Notebook
PC & monitor	2	PC & monitor
AIO multifunctional	1	Printer, Scanner, Xerox
Solder station	2	Solder station
Fasteners set	1	Screw, nuts etc.
Battery	6	Battery LiPo 4S 5000mAh
Tools kit	1	Tools for Lab
CNC milling machine	1	3D CNC 3-Axis

Tab. 27 - OED 3 – Facilities & drone applications equipment provided by the OED HEI

Item	Qty	Description
OED Classroom and eDrone laboratory furniture & facilities	5	Tables
	2	Bookshelves
	12	Chairs
	1	AIO multifunctional (laser printer, scanner, copier)
	1	Desktop PC
	1	HD Projector



Item	Qty	Description
eDrone laboratory drone & facilities	1	Interactive whiteboard
	3	Micro drones for training
	4	Drone frames (quadro- and hexa- frames)
	1	Solder station
	1	Analogical multi tester
	1	Oscilloscope

4.1.4.4 OED 4 – TSU (Ivane Javakhishvili Tbilisi State University, Tbilisi)

Tab. 28 - OED 4 – OED teaching and didactical equipment funded from the eDrone budget

Item	Qty	Description
Computer for office	2	Dell OptiPlex 3070 MT/octacore i7 8 GB ram,
Monitor 24"	2	Dell 24 Monitor - E2420H
Back-UPS	2	Tripp Lite / AVR750UD
Computers for work in classroom	4	Dell Precision 3630 octacore i7 16 GB ram, NVIDIA Quadro P1000 GPUs/Dell 27 Monitor- E2720H
Tablet	1	Samsung / Galaxy Tab Active 2 LTE 16GB / SM-T395
External HD	1	Seagate Basic / STJL5000400

Tab. 29 - OED 4 – Drone and drone applications equipment funded from the eDrone budget

Item	Qty	Description
Flight controller	6	HX4-06057 (Cube & Here 2 (Pixhawk 2.1 Standard)
Frame	6	Hobbyking™ HMF X240 Quadcopter Frame Kit
Brushless Motor	24	MultiStar Viking 1308- 4100KV (Brushless Outrunner Drone Racing Motor (CW) – (CCW)
ESC	24	Turnigy Multistar 32bit 12A Race Spec ESC 2~4S (OPTO)
Propellers	30	for built multirotor
RC Transmitter	6	Turnigy 9X 9Ch Transmitter w/ Module (AFHDS 2A system) Turnigy iA6C PPM/SBUS, 8CH 2.4G AFHDS 2A Telemetry Receiver
Battery fo RC Transmitter	6	ZIPPY Flightmax 2500mAh Transmitter Pack (Futaba/JR)
Battery for built multirotor	12	Turnigy 1300mAh 2S 20C Lipo Pack (w/XT60)
Battery – Charger	2	Turnigy P606 LiPoly/LiFe AC/DC Charger (EU Plug
Battery – Charger	6	Plug-in charger, for rechargeable Ni-MH and Ni-Cd AA and AAA batteries, 4 slots.
Wireless telemetry link	6	Wireless telemetry link - HolyBro Transceiver Telemetry Radio Set V2 (433mhz)
Arduino UNO	6	Arduino UNO - starter kit
IMU - MPU-9250	6	IMU - MPU-9250
Ultrasound - HC-SR04	6	Ultrasound - HC-SR04
GPS - NEO6M	6	GPS - NEO6M
Pro multirotor for	1	DJI Matrice 600 Pro for Environmental monitoring platform



Item	Qty	Description
payloads		
Pro multirotor for payloads	1	Six axis drone. Ready to Fly
Drone to learn how to fly	24	EACHINE E38 WiFi FPV Quadcopter
Propellers for Pro multirotor	6	BGNing 15x5.5 3k Carbon Fiber Propeller CW CCW 1555
Battery for Pro multirotor	2	Multistar High Capacity 10000mAh 6S 10C Multi-Rotor Lipo Pack XT90
Gimbal for pro multirotor + video transmitter 5.8 GHz + video receiver	1	Universal Gimbal (3-Axis) - HAKRC Storm32 + Video transmitter TBS UNIFY PRO 5G8 V3 (SMA) + SKYDROID Dual 32CH 5.8G video receiver
Laboratory accessories	1	soldering station Baku 702
	1	cables 40 x 1 Pin Female To Female Jumper Cable Set. Length: 120mm. Pin Spacing: 1mm;
	1	096-JGO SCREWDRIVER 38 PCS HKSD0338;
	1	Digital multimeter 890D
3D printer	1	Anycubic 3D-171 Upgraded Full Metal I3 Mega 3D PRINT
3D Scanner	1	EinScan SE Desktop 3D Scanner
3D printer filament	10	1.75 mm PLA/ABS/PET or photopolymers
Infrared camera	1	FLIR-duo thermal camera
Multispectral camera	1	Parrot Sequoia
Laser scanner Phoenix aerial systems	1	RPLIDAR A2M8 + Barrel connector
Environmental monitoring platform	1	Flying laboratory SOWA

Tab. 30 - OED 4 – Software funded from the eDrone project budget

Item	Qty	Description
Pix4Dmapper Professional drone-mapping	1	Creates maps from images taken by drones: Pix4D drone mapping & photogrammetry software tools with a flight app, desktop, and cloud platforms, perpetual software license

Tab. 31 - OED 4 – Facilities provided by the OED High Education Institution

Item	Qty	Description
OED Classroom and eDrone laboratory furniture & facilities		Space for OED classroom and eDrone laboratory used by students and staff
		Furniture & access to the TSU facilities
		Printers
eDrone laboratory drone & facilities		LMS – Moodle
		Access to the TSU Server (server facilities are approx. 500,000 EUR value)

4.2 CTT – Course Program for Training the Teachers

The partner designated to organize the Course Program for Training the Teachers (CTT) was Moldova State University (P9-MSU) from Chişinău. This Course program was meant to train



the first *eDrone* teachers, those who will be, further the future CIA professors. Therefore the candidates for such positions were selected among all the other HEIs of the Partner Countries.

In order to be able to fulfil their dedicated tasks, CTT course taught them on the use and development of the hardware and software technologies, essential in the different sectors of civil application of drones.

According to the needs analysis, the CTT program was structured by teaching modules arranged in a 4-month program, with 2 week of internship in EU partner institution for practical activities and for acquiring pilot drone license.

The CTT program is composed by 3 modules. Each learning module was managed by more teachers selected among the consortium: 2 teachers from each HEI partner from the Programme Countries, while the future CIA professors were selected by Armenia, Georgia and Belarus partner institution (3 learners each) and only 1 learner from each Moldova partner institutions.

The learning modules of the course are composed of the following didactical elements:

4. Frontal lessons;
5. e-learning lessons;
6. Home work;
7. Internships;
8. Visits to stakeholders;
9. Team projects;
10. Intermediate evaluations;
11. Examinations.

The CTT aimed to build the awareness of the importance of technological innovation in the field of sectors of civil application of drones in a knowledge-based economy and aimed to train professionals capable of enhancing the collaboration of universities within private enterprises. The carefully chosen teaching methods were based on efficient learning and accurate time management.

As an important achievement of the *eDrone* project, the learning activities of the CTT were also designed to be available as e-learning activities of the CTT were also made accessible through the LMS. LMS is a Moodle e-learning Platform, which was made open for access for *eDrone* students and other platform users from the *eDrone* website (see: § 4.5, [18]).

4.3 CIA – Course Program for Instruction of Attendees

The course was structured as the CIA (Course for Instruction of Attendees) for a less of 5 months duration and was composed of the same modules of the CTT course (see § 4.2), being as well divided in theoretical and practical learning activities. CIA courses were performed in the laboratories organized with the equipment provided by the *eDrone* project.

A main challenge when organizing CIA in the Partner Countries was to identify certain basic possibilities to improve the innovation process in industry/private sectors correlated with the actual state of the particular Partner Country Economy.



Per each Partner Country, the attendees interested for this first (pilot) edition of the VET course were selected among professionals and students and engineering graduates intending to acquire new skills and competences about civil application of drones, including for design and development of innovative systems aimed at supporting the civil use of drones.

In order to discover the existing skills, competences and resources in order to support and facilitate the process of innovation, in each Partner Country were carried out research activities on the human resources interested in attending the courses provided by the 4 OEDs created in the frame of the *eDrone* project.

Furthermore, such researches targeted the existing regulatory frame regarding the sectors of civil application of drones, in order to support with professional analysis documents a future contact with Partner Countries policy-makers.

In cohesion with the need for strengthening the relation between higher education and wider economic and social environment, *eDrone* partners put in place actions to persuade the relevant Ministries of the Republics of involved Partner Countries to approve the new courses degree and recognize formally the relative area of expertise. The importance of this act of suasion is in plain sight since all the Partner Country Governments (in the new economic *Improvement Strategy*) have emphasized the need to improve the quality of specialists and curricula, strengthening the material and technical bases of higher education institutions.

The associated exploitation results (deliverables) of the project are supplied by both WP1 (**User Needs and State of Art Analysis**) and WP2 (**Regulatory State of Art Analysis**), work-packages which comprise also user-need studies/analysis dedicated on:

- Drones and sensors technologies (see: reports A1.4 - User needs document [3] & A2.4 - Regulatory needs report [6]),
- Regulatory drones laws (see: [1], [4], [5]).

In order to disseminate the importance of the sectors of civil application of drones and to share information and to analyse the strategic policy orientation, the universities from the 4 Partner Countries had to organize during the *eDrone* project duration two workshops – each.

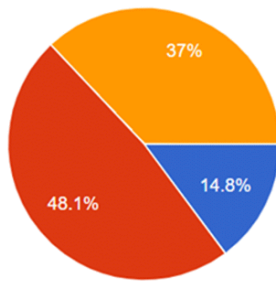
However there is one exception, in Tbilisi, Georgia, where Ivane Javakhishvili Tbilisi State University had to organize, between March 31 and April 4, the last two planned events, from the *eDrone* project, i.e. the final project coordination meeting, coupled with the last workshop.

Unfortunately, for our *eDrone* project, during that very period, taking into account the lockdown imposed by Georgia, as by many other countries (Italy, France, Romania, Moldova etc.) as a consequence of the COVID-19 pandemic, we got a force majeure situation that prevented us to organize and to have an international participation at the mentioned events (the last one TSU workshop, as also the final eDrone project meeting).

Nevertheless, in the end, the closing TSU workshop was organised during October 8-9, but in a virtual manner.



37



- Postgraduate studies
- Higher education studies
- Specialized areas

- Border Police,
- TV Journal,
- ProTV,
- Ministry of Education,
- Culture and Research of the Republic of Moldova,
- Public Procurement Agency of the Republic of Moldova.

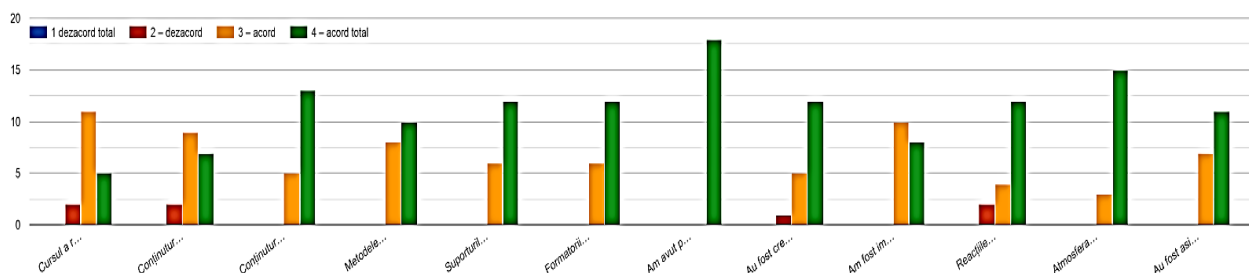
2. *At the same time, people from the academic organizations participated in the CIA "Education for Drone":*

- Technical University "Gh. Asachi" from Iași (Romania),
- State Agricultural University of Moldova,
- IP LT Nicolae Milescu Spatarul,
- State University "Dimitrie Cantemir",
- Moldova State University,
- Police Academy.

3. *Considering that the CIA „Education for Drone” Program can be attended by a very wide spectrum of people from different areas, but interested in the field and the subject addressed, the CIA courses were attended by people with different background:*

- Postgraduate studies (48.1%),
- Higher education studies (37%)
- Specialized areas (14.8%).

About the quality of CIA “Education for Drone”

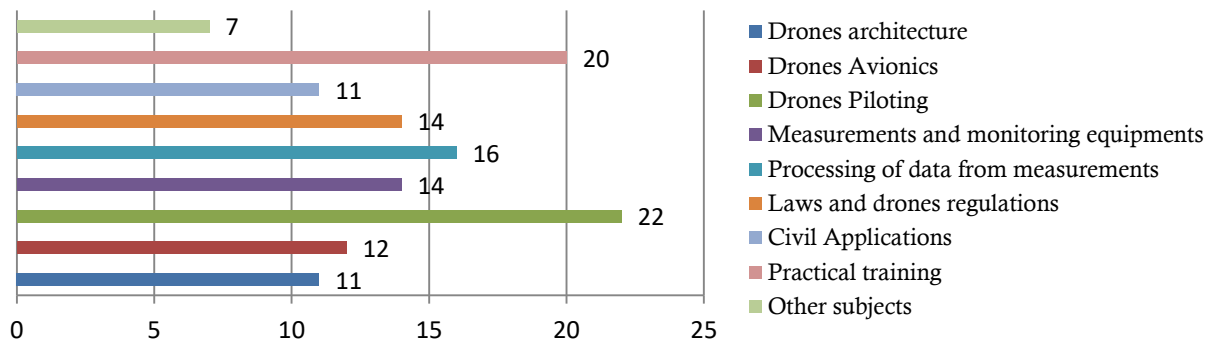


The following quality aspects were appreciated by respondents as very good and good.

- accessibility of the courses;
- correspondence of the training methods;



- usefulness of the pedagogical supports;
- professional competence of the trainers;
- possibility of free expression of opinion;
- creation of conditions for the exchange of experience;
- positive reactions towards the course;
- assurance of a comfortable atmosphere contributed to the success of the course;
- assurance of the optimal conditions



1. All the modules taught in the CIA „Education for Drone” were evaluate as very important and important and need to be the part of the future courses.
2. The course should be extended with more advanced parts:
 - Integration of drone applications in the airspace.
 - Generation, operation and supervision of routes.
 - Automation in the drone operating system.
3. Suggestions for improving the CIA „Education for Drone”:
 - Selection of groups with the same background level and approximately equal areas.
 - The possibility of purchasing the handbook for an affordable price.
 - To introduce in the Civil Applications Module the topics: a) traffic monitoring and b) mass meetings monitoring.
 - More practical activities and applications focused on group projects: mapping, environmental quality assessment, 3D imaging with the help of the drone.
 - More practical hours.
4. Moreover, all participants in the CIA courses have active accounts on the MOODLE Educational Platform used for teaching the courses (see: § 4.5 - LMS (Moodle) e-learning



Platform). Even if some practical parts of the CIA course need direct access to the laboratory facilities, in these cases the participants can use eDrone video tutorials uploaded on the LMS.



4.3.2 CIA courses in Belarus (OED 2 – Belarusian State Technological University)

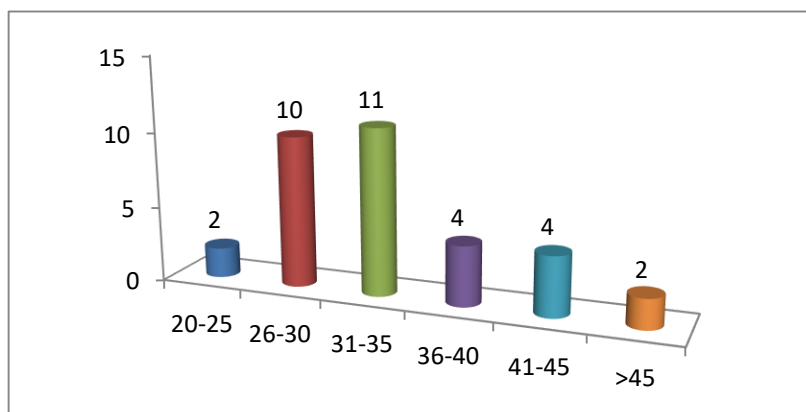
List (description) of the different application sectors of the drone technology field (from where came the users of the applications and functionalities of eDrone system)

- 1 Forestry – 5 users
- 2 Mass media – 3 users
- 3 Public security – 4 users
- 4 Public services – 4 users
- 5 Drone technology – 9 users
- 6 Construction – 7 users
- 7 Individuals interested in drone personal use – 1 user
- 8 University students: Bachelor students – 39, Master students – 10

OED BSTU organised 7 editions of the CIA courses. Almost all the participants in the CIA courses were the employees from different organisations, professionals from different areas. At the end of the each CIA edition the participants filled in the questionnaire about their satisfaction with the CIA course. The results are presented below:

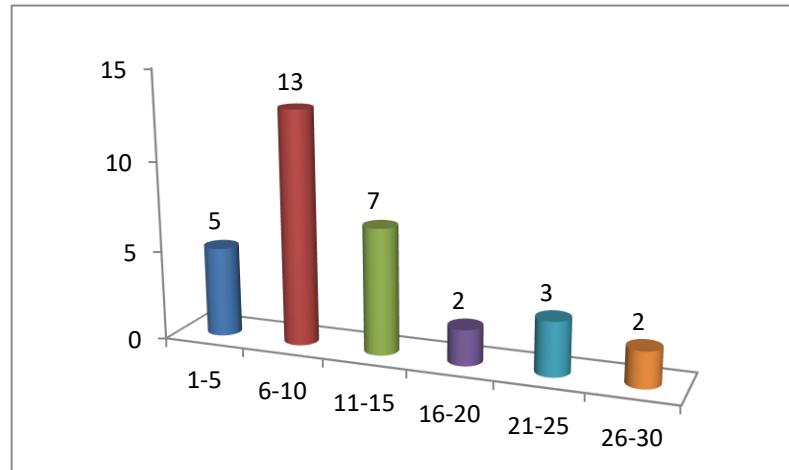
About our CIA participants (without University students):

Most of the participants of the CIA courses are persons between the ages of 25-35 years; these are people of working age, ready for training, career and professional growth



Most of the respondents have work experience between 5-15 years, the desire to learn, develop and improve their knowledge being the reason for choosing the CIA courses.





Participants of CIA courses are people from various sectors of the economy and society, such as:

- construction
- engineering
- gas services
- administration of capital construction
- forest industry
- mass media
- constructional bureau
- Security Service of the President of the Republic of Belarus
- Ministry of Emergency Situations of the Republic of Belarus
- Ministry of Housing and Communal Services of the Republic of Belarus
- University students

About the quality of CIA “Education for Drone:

The *appreciated quality aspects* are:

- Well-designed program;
- A large number of useful information;
- A large number of practical teaching;
- Availability of the legal basis of the use of drones;
- Accessibility of the courses;



- Interaction with and feedback from the course organizers;
- Provided conditions for the exchange of experience;
- Comfortable atmosphere;
- Modules taught in the CIA are of high importance.

Suggestions for improving the CIA courses:

- Selection of groups with the same experience and a similar field of activity;
- More emphasis on surveying tasks with the help of the drone;
- More hours studying the processing of information obtained using drones;
- Development of the second study program designed especially for the mass media representatives focusing on the study of photos and videos using drones

In addition, the concept of using unmanned aerial vehicles was introduced into the educational process of bachelor students and master students. Under this program, already **39 bachelor students and 10 master students** were trained, the first semester of 2019-2020, namely:

- 16 - 4-year students of the specialty „Real Estate Management”;
- 23 - 3rd year students of the specialty „Real Estate Management” at the moment;
- 6 - master students of the 1st course of the specialty „Public Administration and Economics”;
- 4 - master students of the 2 courses of the specialty „Property Management”

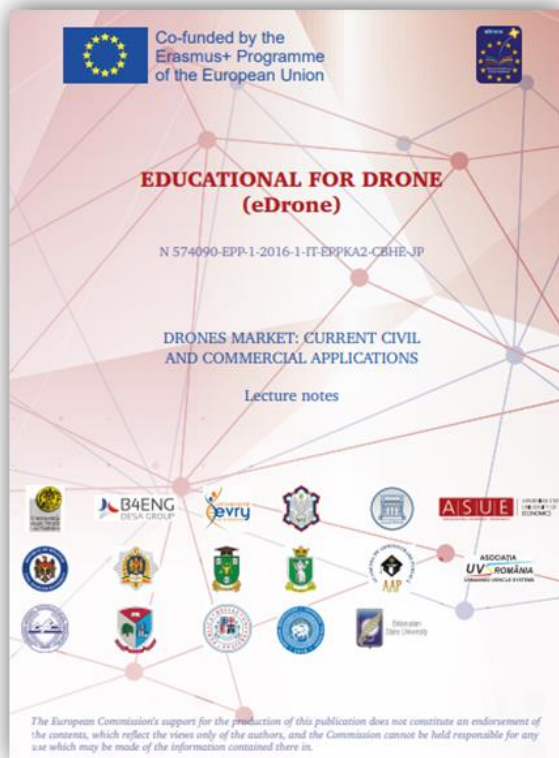
4.3.3 CIA courses in Armenia (OED 3 – National Polytechnic University of Armenia)

For the Armenian CIA courses were developed the following special Course Outlines, (subject educational programs):

- Drones aerodynamics and architecture;
- Avionic systems for drones.

From 1st September 2020 these subjects were included in the „Aircraft aviation equipment” bachelor educational program under the „Aviation and rocket technics” specialty, as minor courses.





- According to the agreement between NPUA and UAV LAB LTD and Locator LTD NPUA students of specialties of aviation mechanics and aviation management and economics as well as trainees of CIA courses will undergo internship and practical training at these enterprises.

- On the base of CIA curricula a draft of the new educational program “Operation and application of unmanned aerial vehicles” was developed by the NPUA project team, which will be discussed in the NPUA Scientific Council in September-October 2020.

- According to the preliminary agreement with the United Nations Development Program officers and program coordinator trainers of two regional Aerial Robotics Educational Centers in Vayk and Stephanavan will be trained in the OED (ToT courses).



Fig. 1 - Printed lecture notes for the CIA attendees (ASUE)



4.3.4 CIA courses in Georgia (OED 4 – Ivane Javakhishvili Tbilisi State University)

The CIA courses have been developed in the OED TSU. The CIA participants' backgrounds were from the following fields:

- Academia,
- Forestry,
- Agriculture,
- Archaeology,
- Meteorology,
- Drone personal use.

The course material has been uploaded on e-courses.tsu.ge, under the link:

<https://e-courses.tsu.ge/login/index.php>

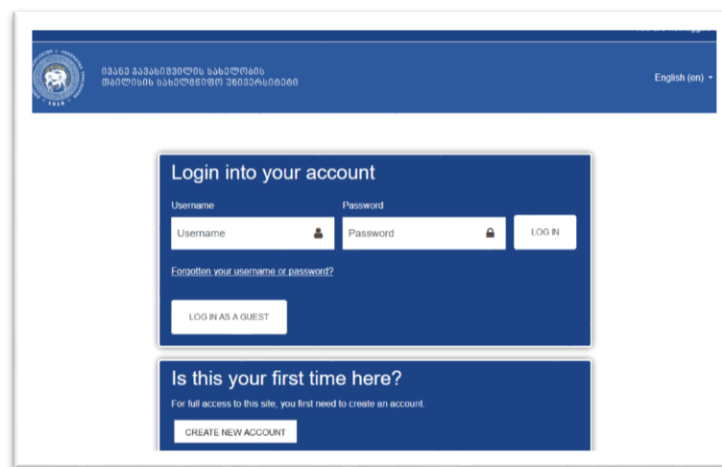


Fig. 2 eDrone courses on e-courses.tsu.ge - login page

Up to date, 2 CIA courses have been delivered in Georgia, but because of the Pandemic COVID 19, the full practical laboratory works could not be carried out. But, very important thing is that the interest in the courses is very high and people are asking for access to the laboratory.

For CIA course administration the email - edrone@tsu.ge has been created, in order to distribute the information about the course process comfortably and inform CIA students about the news and agenda. Also, Facebook Group was organized to create the community and support the communication among participants - <https://www.facebook.com/groups/437184073908044>





Fig. 3 eDrone courses on e-courses.tsu.ge - web-site main menu page

CIA 2nd edition has been conducted virtually because of the pandemic lockdown. 35 participants had the opportunity to attend the online theoretical part of the course. They are waiting for the restrictions in the country to be released in order to have access to the laboratory and have practical works there.

Participants have evaluated the theoretical part of the course and suggested that practical works are highly important for final results. They suggested that the groups should be completed with people of the same backgrounds.



Fig. 4 - Virtually conducted CIA courses 2nd edition



4.4 Internship and visits to key stakeholders

4.4.1 Internship Stages Activities

Internship represents one of the major CTT learning modules. Those learning modules are composed of the following didactical elements: (i) frontal lessons; (ii) e-learning lessons; (iii) home work; (iv) **internships**; (v) visits; (vi) team projects; (vii) intermediate evaluations; and (viii) examinations.

In the autumn of 2018 (between September and October), each group of 6 Partner Country teachers – dedicated to support the Partner Countries CIA courses – participated (for two weeks) to a Programme Country HEIs for internship activities specifically devoted to the acquirement of practical competences and for a drone pilot license. In particular: the 6 teachers from Georgia were hosted by UNISANN; the 6 teachers from Moldova were hosted by UNIVERY; the 6 teachers from Armenia were hosted by MUT; the 6 teachers from Belarus were hosted by UNIGAL.

This important exploitation activity, correlated with both CTT and CIA courses is widely presented, according the Partner Countries, as follow:

- P1-UNISANN (internship students from Armenia – in Italy), (See: Annex A.3.a)
- P3-UNIEVRY (internship students from Moldova – in France), (See: Annex A.3.b)
- P4-MUT (internship students from Georgia – in Poland), (See: Annex A.3.c)
- P5-UNIGAL (internship students from Belarus – in Romania) (See: Annex A.3.d)

Nevertheless, beyond the organized CTT courses, the internship activities will continue with the help of local (Partner Countries) companies, with important activity in the civil application sector of drone fields. Therefore, the Partner Country universities will advertise regularly the open internship positions in local companies acting in the civil application sector of drone fields, as learners are encouraged to engage with this kind of experience as long as this can increase their specialist knowledge and chances to access the labour market. Moreover, attracting new enterprises and making them aware of the opportunities of research collaboration can extend the duration of internship activities.

A specific document, A7.3 – Internship promotion ([deliverable](#)) [10], already reports on the results obtained, in the Partner Countries, with such activities.



4.5 LMS (Moodle) e-learning Platform

4.5.1 eDrone website – (LMS) Moodle e-learning Platform



Fig. 5 Edroneproject.org website – Home page

A.1.a - How to Access eDrone Moodle e-learning Platform) and also how CIA teachers have access to some basic LMS support operations, as the add or update of the digital resources (as the eDrone video tutorials are) created by our teachers/lecturers for the CTT courses and their students (see: § *Annex A.1.b - How to Add Moodle Resources*).

Our *eDrone* website comprises three main sections: a public section, a private section and a (LMS) Moodle repository.

1. In the *public* section, the eDrone project partners share with the public and with the potential stockholder the aims, goals, achieved results of eDrone, deliverables, news, events, pictures, videos and so on.

2. In the *private* area, there are stored and made available the supporting documents used by the project partners in order to share/collect technical and economic information.

3. On the *Moodle* platform, teachers make available their courses and lessons and all supporting resources and didactical digital tools necessary to present their CIA courses (see: § 4.3).

In the *Annex A.1*, entitled *eDrone Moodle e-learning Platform*, it is documented how the users can access the learning platform (see: § *Annex*



5 Dissemination of the results

5.1 Consideration of how and to whom exploitation and dissemination outcomes have to be disseminated.

Coping together with the **exploitation** component of a project, the dissemination part is also supposed to raise the quality of the project by stimulating innovative projects and sharing good practices, through an adequate communication. **Exploitation** and dissemination of results form a crucial part of any communication activities taking place during the project's lifetime.

As a broader concept, communication includes information and promotion activities to raise awareness and enhance the visibility of the project's activities in addition to the **exploitation** and dissemination results of the project.

Regarding the **exploitation** and dissemination outcomes that had to be disseminated, here are few specific examples of activities performed during the project:

- Contacting relevant media e.g. at local or regional level;
- Conducting regular activities such as information sessions, training, demonstrations, peer reviews;
- Assessing the project's impact on target groups;
- Involving other stakeholders in view of transferring results to end users/ new areas/policies.
- Adding a banner with a link to project card within the Erasmus+ Project Platform on the project website

5.2 Indicators on the dissemination tools used along the *eDrone* project

In the following two tables are centralised the most important dissemination tools used in order to better communicate the knowledge and the novel content developed along the *eDrone* project and to present project's **exploitation** results.

The first table presents the performance indicator of the *eDrone* project's website [18], part of the ICT platform, together with the internet visibility of the project obtained including using social media applications (as Facebook [17] and Twitter [18]).

Tab. 32 - Internet visibility of the project

Communication Tool	Performance Indicator	
Project's website	Website visitors (including those from the previous <i>eDrone</i> project website (http://www.edrone.UNISANNio.it)[19]	18770
	Page views	93851
	Documents downloads	1541



Communication Tool	Performance Indicator	
Facebook [17]	Followers number	219
	Post views (last 3 months)	311
	Number of post shares (last 3 months)	45
	Comments (last 3 months)	104

The following table presents some important indicators focusing on the dissemination events as conferences and workshops, together with press releases (See: Annex A.2)

Tab. 33 - Indicators on the dissemination tools

Communication Tool	Performance Indicator	OED 1 MSU	OED 2 BSTU	OED 3 NPUA	OED 4 TSU
Conferences/ workshops/ events	Number of participants	200	300+	4	20+
	Number of presenters	20	25+	12	3
Press Releases	Mentions in the press (incl. links or screenshots)	17*	11**	17***	10****

* (see: Tab. 39), ** (see: Tab. 40), *** (see: Tab. 41), **** (see: Tab. 42)

5.3 Means and techniques used to disseminate and exploit eDrone results

5.3.1 Erasmus+ Project Results Platform (see below)

According Erasmus+ recommendations for dissemination, *eDrone* project is already presented on the Erasmus+ Project Results Platform: (see: [16])

Key Action: Cooperation for innovation and the exchange of good practices
Action Type: Capacity Building in higher education

Project Title / Acronym

Educational for Drone / *eDrone*

Project Coordinator

UNIVERSITA DEGLI STUDI DEL SANNIO
PIAZZA GUERRAZZI 1, 82100 BENEVENTO, Extra-Regio NUTS 2, IT
www.UNISANNIO.it

Project Information

574090-EPP-1-2016-1-IT-EPPKA2-CBHE-JP
Oct 15, 2016 - Apr 30, 2020
995,412 EUR



Project Partners

Programme Country Partners: UNIVERSITE D'EVRY-VAL D'ESSONE (FR), WOJSKOWA AKADEMIA TECHNICZNA IM. JAROSŁAWA DĄBROWSKIEGO (PL), UNIVERSITATEA DUNAREA DE JOS DIN GALATI (RO), ASOCIATIA UVS ROMANIA (RO), B4ENG (FR)

Partner Country Partners: AUTORITATEA AERONAUTICA CIVILA (MD), BELARUSIAN STATE UNIVERSITY (BY), UNIVERSITATEA DE STAT DIN MOLDOVA (MD), UNIVERSITATEA AGRARA DE STAT DIN MOLDOVA (MD), ACADEMIA DE ADMINISTRARE PUBLICA (MD), ARMENIAN STATE UNIVERSITY OF ECONOMICS (AM), NATIONAL POLYTECHNIC UNIVERSITY OF ARMENIA FOUNDATION (AM), BELORUSSKIY GOSUDARSTVENNIY TEHNOLOGICHESKIY UNIVERSITET (BY), ILIA STATE UNIVERSITY (GE), IVANE JAVAKHISHVILI TBILISI STATE UNIVERSITY (GE), ACADEMIA STEFAN CEL MARE A MINISTERULUI AFACERILOR INTERNE (MD)

Project Coordinator and Partners Map

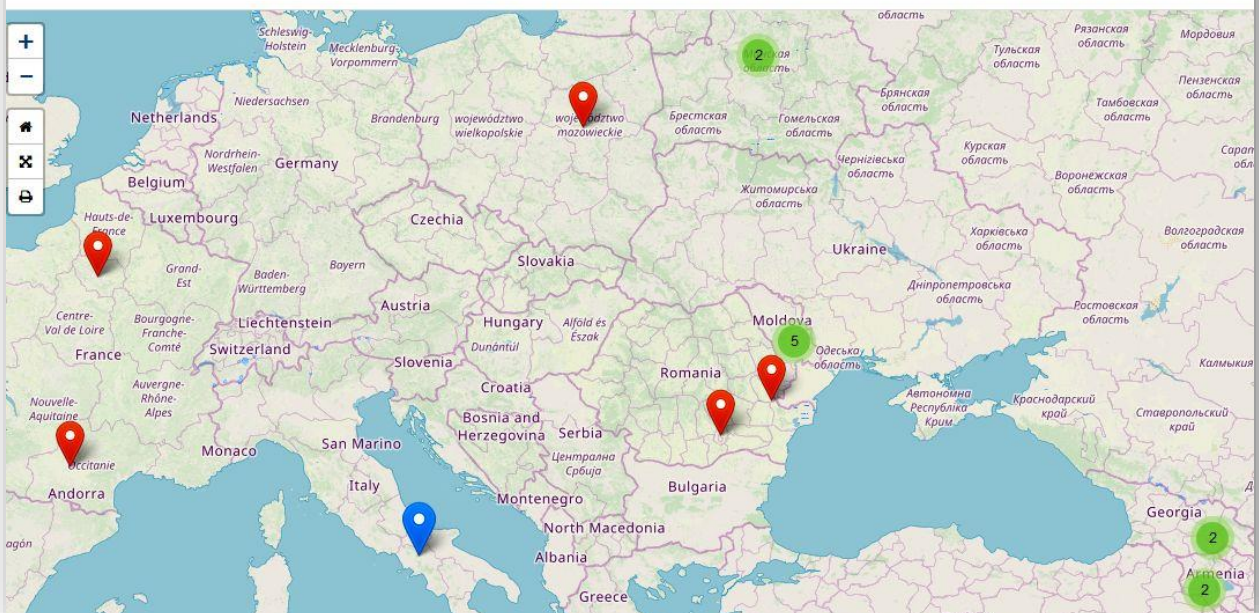


Fig. 6 Partners' Map

5.3.2 Project or organisational websites;

Since the first *eDrone* project activity of the started, the coordinator, P1-UNISANN (University of Sannio) took care of creating the website of this project <http://www.edrone.UNISANNio.it/>. [13]. The website was (first) hosted and maintained by the



Italian University Grant holder, in its role as TechReh (*Technology in Rehabilitation*) ERASMUS+ project coordinator.

This *eDrone* website was online since the beginning of February 2017 and it was hosted by the web server of the university. It was developed using standard web instruments and programming languages. A statistics analyser has been also activated. The website was W3C compliant, as far as accessibility is deeply concerned.

Due to technical reasons, after the website's LMS section developed continuously and exceeded the allowed storage capabilities, in January 2020 *eDrone* project's website migrated at a new web address, respectively at <http://www.edroneproject.org/>, which offered a most generous storage capability to our project [18].

Since then, *eDrone* project's website came under the managing and responsibility of the *eDrone* partner P6-ASUVS (respectively UVS-ROMÂNIA), that will also host and manage it for the next 10 years, in order to ensure accesses to the project website, long time after the end of the project funding period.

The main goal of the *eDrone* project specific website is to promote and disseminate all project activities and results (in the public section) and to satisfy project partners' needs (in the reserved area) [13].

5.3.2.1 *The menus of the Web-site are:*

Public Section has as sub-menus: Home News Events Testimonials Gallery Video Gallery CTT Courses Contacts Upload File	Main Menu has as submenus: Project Objectives Time Plan Activities List & Deliverables Partners Associated Partners Contacts Master Thesis ICT didactical framework Milestones
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5.3.3 Meetings and visits to key stakeholders, including visits to the manufactures and Associated Partners

(In the reference [2], one should find a comprehensive list on the visits performed by all the partners to stakeholders, manufactures or Associated Partners).

5.3.4 Practical tools or products

See ([9] A7.2 – OED CIA promotion ([deliverable](#))) handbooks, curricula.

Also, such handbooks produced for the CIA courses and their curricula should be presented for all the OEDs: Moldova (P9), Armenia (P13), Belarus (P14) and Georgia (P16).



5.3.5 Targeted written material and audio-visual media and products

To present a summary, per Partner Country (see: *Annex A.1 - OED Press Releases - incl. web-site links*), on categories as: radio, TV, internet, reports, articles in specialised press, newsletters, press releases, leaflets or brochures.

5.3.6 Internet visibility tools - Social media

Aiming to increase the visibility using internet applications *eDrone* project used also social media dissemination tools as those presented in the *Tab. 33 - Internet visibility of the project*. Internet visibility tools used by our project includes, besides the *eDrone* project's website [20], part of the ICT platform, important social media applications, as Facebook [17] and Twitter [18] are.

5.3.6.1 Facebook

eDrone project was present, since 2017, on Facebook - one of the most important social media applications. It was a wise choice since the posts of the *eDrone* Facebook page attracted a significant number of followers and generated also a similar number of post shares and comments.

The mentioned interest of the drone users following our project activity on Facebook is presented in the *Tab. 33 - Internet visibility of the project*, being also documented by the report A7.6 – *Promotion and exploitation of the ICT platform (deliverable)* [13].

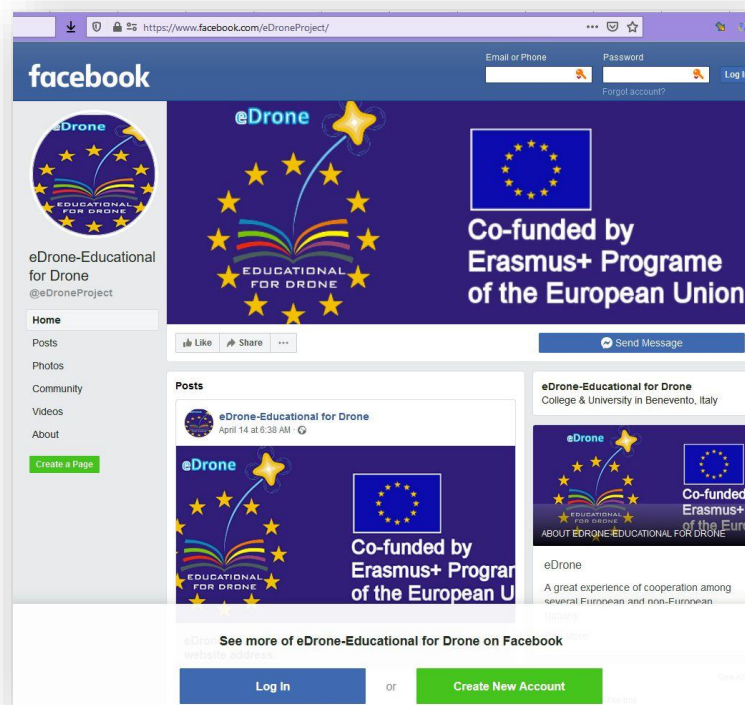


Fig. 7 - Clipboard of the *eDrone* Facebook homepage



5.3.6.2 Twitter

eDrone project is present also on Twitter, (https://twitter.com/eDrone_Project) [18]

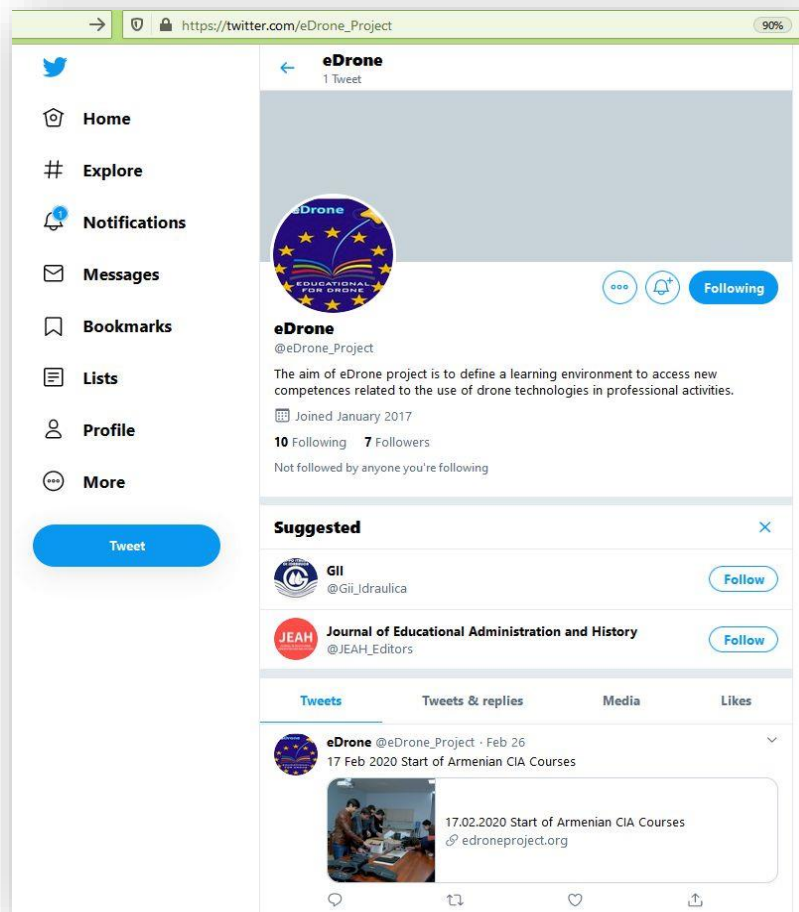


Fig. 8 - Clipboard of the eDrone Twitter homepage

5.3.7 Public events - Workshops & Consortium meetings

This sub-chapter presents describes the up-to-day state of those working events as workshops and Consortium meetings, organized by and related with our *eDrone* project, or with the sectors of civil application of drones, during the 3-years-long project duration.

The universities from the 4 Partner Countries had to organize during the *eDrone* project duration, two workshops, in each country, as follows:

- The first four workshops, which had to be hosted by the four eDrone Partner Countries (Moldova, Armenia, Belarus and Georgia), were related with the preparation of the specific eDrone work-packages (WP1, WP2, WP3 and WP4), aiming to define and settle



the preliminary development conditions for the constructions of the 4 OEDs, as designated Erasmus+ VET centres.

- The last (final) workshops, which had to be hosted by CAA (Moldova), NPUA (Armenia), BSU (Belarus) and TSU (Georgia), aimed to identify the directions of future possible collaborations with local, regional, national and international stakeholders, in order to disseminate the importance of the sectors of civil application of drones and to share information and to analyse the strategic policy orientation [7].

Tab. 34 - eDrone project Workshops

Event No.	Date / Period	Locations of the Workshops	Obs.
1	2017.07.11	Tbilisi-ISU Workshop on eDrone Technology	See § 5.3.7.1
2	2017.07.13	Yerevan-ASUE Workshop on Laws for Drones	See § 5.3.7.1
3	2018.11.4-7	Minsk Workshop on eDrone Technology	See § 5.3.7.2
4	2018.12.05	Chisinau Workshop on Drones applications	See § 5.3.7.3
5	2019.06.12-15	Chisinau Final Workshop on UAS Applications	See § 5.3.7.4
6	2019.09.18-21	Minsk Final Workshop on eDrone Technology	See § 5.3.7.5
7	2020.02.05-08	Yerevan Final Workshop on eDrone Technology	See § 5.3.7.6
8	2020.10.8-9	Virtual Tbilisi Final Workshop	See § 5.3.7.7

This important indicator was also fulfilled in the frame of the normal activity in the project, but with one exception, namely in Georgia. Here, P16-TSU (Ivane Javakhishvili Tbilisi State University) had to organize, between March 31 and April 4, in Tbilisi, the last two planned events, from the *eDrone* project, i.e. the final eDrone project coordination meeting, coupled with the last workshop.

Unfortunately, during that very period, taking into account the lockdown imposed by Georgia, as by many other countries (Italy, France, Romania, Moldova etc.) as a consequence of the COVID-19 pandemic, we got a force majeure situation that prevented us to organize and to have an international participation at the mentioned events (the last one workshop, as also the final eDrone project meeting).

Finally, we all agreed that these two events will happen in the form of virtual meetings, as most of the international scientific events did in this period. For the Tbilisi workshop, organized by TSU, we transformed and adapted it as a Virtual Conference, during October 8-9, in the last days of our *eDrone* project.

During the pandemic international lockdown the project coordinator, P1 – UNISANN asked EACEA for – and consequently got – a 5½ months long suspension approval (between April 14 and October 1st, 2020). This way, the last unconsumed *eDrone* project extent restarted at October 1st and – finally – ended on October 14th.

In order to supply an eventual lack of communication during the suspension and taking into account that because of the pandemic international lockdown we missed our last Consortium Meeting, the project coordinator organised instead not only one, but 3 Virtual Meetings as Project Consortium Meetings. P1-UNISANN organised them on the dates of: July 1st, July 29th and



September 25th, for two hours duration – each. Thus, we managed to get and offer constantly to all the participants, an up-to-date image on the *eDrone* project progresses made in the exploitation and dissemination directions.

5.3.7.1 **2017.07.11 - Tbilisi-ISU Workshop on *eDrone* Technology & 2017.07.13 - Yerevan-ASUE Workshop on Laws for Drones**

All the *eDrone* project partners were asked to give their contribution to the arrangement of two first workshops, focused on bringing together target groups coming from the Partner Countries involved and also companies and stakeholders willing to increase the inclusion of technology in the sectors of civil application of drones. In the initial schedule, the two events had to be hosted during respectively by:

- Ilia State University (P15-ISU) (Georgia);
- Belarusian State University (P17-BSU) (Belarus);

Nevertheless, since the start of the involvement for our Belarusian partners (P14-BSTU and P17-BSU) was severely postponed by the delays due to their late national approvals to take part in our Erasmus+ *eDrone* project, those first two workshops were organized and hosted - instead - by Georgia and Armenia HEI partners, successively, coupled as to form a joint international event:

- The workshop focused on *eDrone* Technology was hosted on July 11, by Ilia State University (P15-ISU), in Tbilisi (Georgia).
- It was followed by the second workshop coupled with it, in Yerevan, on July 13, hosted by Armenian State University of Economics (P12-ASUE). It had as main interest the state of art on Laws for Drones.

Both of these two workshops represented an opportunity for the partners involved into the *eDrone* project to find shared objectives and actions. On one side, Programme Partners had an excellent occasion to present their competencies and experiences in the field of civil application of drones. On other side, all involved partners paid attention to the promotion these workshops and involved further the local enterprises, stakeholders and professional orders.

5.3.7.2 **2018.11.4-7 - Minsk Workshop on *eDrone* Technology**

The agenda of the first Minsk workshop underlined various directions of using drones nowadays. Main presentations came both from *eDrone* project partners and from local partners - LP* (from Belarus):

- P1 - Measurements for drones and drones for measurements
- P5 - Environment & Precision agriculture Drone Applications
- P12 - New and innovative educational approaches and demands that emerged during the *eDrone* project implementation
- P15 - Future of Drones and Technology Trends
- P16 - Agrodrones - New technology in Agriculture



- LP* - Application of Drone technology in the system of Real Estate Formation and State Registration
- LP* - Application of Drone technology in land monitoring

5.3.7.3 2018.12.05 - Chisinau Workshop on Drones applications

The agenda of the first Chisinau workshop underlined major directions in using drones nowadays. Main presentations came from *eDrone* project partners and from local partners - LP* (from Moldova):

- P7 - Policies and international law in the field of civil aviation.
- P7 - Unmanned aircraft - from segregation to integration.
- P8 - Drones use: some aspects of the private life and public needs.
- P8 - Drone – efficient technical tool for monitoring the state border.
- P10 - UAV technology in agriculture.
- LP* - The need of using drones in Service 112.
- LP* - Applicability of unmanned aircraft.
- LP* - Drones: between daily life and the needs of changing world.
- LP* - Use of unmanned aircraft systems for aerial aerography of the territory.

5.3.7.4 2019.06.12-15 - Chisinau Final Workshop on UAS Applications

The agenda of the workshop underlined more directions of using drones nowadays. Main presentations came from *eDrone* project partners and from local partners - LP* (from Moldova):

- P8 - The RPAS applications – Personal privacy vs. public needs
- P10 - UAS applications in forestry services
- P11 - The application of Drones – Interference between public sector and privacy
- LP* - Aerial imaging using UAS for mapping.

5.3.7.5 2019.09.18-21- Minsk Final Workshop on eDrone Technology

The agenda of the workshop underlined the most significant directions on *eDrone* Technology nowadays. Significant presentations came from *eDrone* project partners and from local partners - LP* (from Belarus):

- P15 - Future Challenges for Drones in Civil Applications Globally
- P17 - Flying measuring station based on drone DJI
- P17 - Long-term land use structure monitored using medium resolution remotely sensed data
- P17 - GIS technologies for processing and analysis remote sensing data



- LP* - Drone application of Emergency Situations

5.3.7.6 2020.02.05-08 - Yerevan Final Workshop on eDrone Technology

The agenda of this final Yerevan workshop underlined the most nowadays frequent directions for the technology of drones. Main presentations came both from *eDrone* project partners and from local partners - LP* (from Armenia):

- P15 - Future Challenges for Drones in Civil Applications Globally
- P13 - Insurance in Drones Exploitation
- LP* - Drones application view from Europe
- LP* - Drone management system design
- LP* - Perspectives of Aerial Robotics
- LP* - State regulation of drones
- LP* - Drones design and production

5.3.7.7 2020.10.8-9 - Virtual Tbilisi Final Workshop

Similar with other workshops, the agenda of the virtual workshop – organized by the p coordinator (P1-UNISANN) – underlined few directions of using drones nowadays. Main presentations came both from *eDrone* project partners and local partners - LP* (from Georgia):

- P9 - Development of Drones Civil Applications in Moldova
- P13 - Development of Drones Industry in Armenia
- P14 - Drones in Belarus: past, present, future
- P15 - Drones Civil Applications Trends
- P16 - Drones in atmospheric research
- LP* - Challenges for drone's construction in Georgia
- LP* - Drones Usage in 3D Scanning

5.3.7.8 eDrone project Consortium coordination meetings

During *eDrone* project the Consortium coordination meetings (represented by the kick-off and advancement meetings) were managed by the project coordinator (P1-UNISANN) in the frame of WP8 – Management. During these Consortium coordination meetings, the project progress was illustrated and next steps addressed.

- P13-NPUA (Armenia) arranged and hosted the kick-off bundled with the initial Consortium coordination meeting, as an important step in starting the works of *eDrone*.
- Next, the Moldova partner P8-ACAPOL, in joint cooperation with P9-MSU, arranged and hosted the first consortium meeting, with excellent results for the implementation of the *eDrone* project objectives.



- Further, P14-BSTU (Belarus) was responsible for hosting the second consortium meeting in the second year of project life.
- Initially, P16-TSU (Georgia), as the designated Georgian representative, was in charge of organizing the last consortium meeting. Instead, this meeting was organized and coordinated especially by the project Coordinator P1-UNISANN, right during the suspension period. This change of plan was necessary because this last and special Consortium coordination meeting had to satisfy moreover the necessity for coordination throughout this without precedent situation faced by all the participants, namely this pandemic international lockdown.

Before each meeting, the project coordinator (P1-UNISANN) prepared - through a short preliminary virtual conference with the *eDrone* project partners - a list of topics to be discussed. During the first 3 such coordination meetings, their organizers encouraged the incoming partners to visit their sites and laboratories, in order to share experiences and promote active collaborations.

It is also of a significant importance to mention that, as during all the *eDrone* project collaboration among partners, the respect of the religious, political and ethical issues of the visitors was entirely guaranteed.

Tab. 35 - eDrone project Consortium coordination meetings

Event No.	Date / Period	Locations of the Workshops	Obs.
1	2017.02.14-15	Yerevan Kick-off & Consortium meeting	Bundled with the Kick-off event
2	2017.12.07	Chisinau Consortium meeting	
3	2019.04.01	Minsk Consortium meeting	
4	2020.07.01	Virtual Consortium meeting 1	Initially planned for Tbilisi

5.3.8 Major dissemination activities and dedicated dissemination opportunities

Dissemination of the results acquired during any project stands for a strong pillar of the project implementation. It is among the project partners and across their local and national specialists, first, and at an international level, next, that such a novel and specific project as *eDrone* project should be disseminated.

The table below presents the extensive list of the major activities of dissemination of our *eDrone* project implementation results, activities organized by the 4 Partner Countries (*Tab. 37*):

- Conferences,
- Workshops,
- Project management meetings & internal (national) meetings,
- Round-tables,
- In-house events,
- Disseminating using other exploitation events.



Aiming to promote and disseminate the implementation results, all the project partners contributed to this activities, in many and different ways. Thus, besides the dissemination activities list presented in the next table (Tab. 37 – The extensive list of eDrone project major activities of dissemination), we may add also other events and other dissemination opportunities used mainly by the 4 Partner Countries OEDs, as:

- Information sessions,
- Seminars (online or face-to-face),
- Training courses, as those presented by other deliverables ([9] A7.2 – OED CIA promotion ([deliverable](#))),
- Exhibitions & Demonstrations.

Tab. 36 – The extensive list of eDrone project major activities of dissemination

Event No.	Date / Period	Workshops, Meetings and In-house events	Obs.
1	2016.01.25-26	Brussels Kick-off	
2	2017.02.14-15	Yerevan Kick-off & Consortium meeting	See § 5.3.7.8
3	2017.07.11	Tbilisi Workshop on eDrone Technology	See § 5.3.7.1
4	2017.07.13	Yerevan Workshop on Laws for Drones	See § 5.3.7.1
5	2017.10.03	Chisinau Round Table on drones Event	
6	2017.11.29	Yerevan In-House Dissemination Event	
7	2017.12.07	Chisinau Consortium meeting	See § 5.3.7.8
8	2018.02.02	Yerevan In-House Dissemination Event	
9	2018.11.4-7	Minsk Workshop on eDrone Technology	See § 5.3.7.2
10	2018.11.10	Chisinau Science Day	
11	2018.12.05	Chisinau Workshop on Drones applications	See § 5.3.7.3
12	2019.04.01	Minsk Consortium meeting	See § 5.3.7.8
13	2019.06.12-15	Chisinau Final Workshop on UAS Applications	See § 5.3.7.4
14	2019.07.03	Chisinau Work meeting	
15	2019.09.18-21	Minsk Final Workshop on eDrone Technology	See § 5.3.7.5
16	2019.09.26	Yerevan Internal meeting workshop with students	
17	2019.10.21	Yerevan Internal meeting new associate partner meeting	
18	2019.10.25	Yerevan Internal meeting Presented during the ASUE Job fair	
19	2019.11.29	Chisinau The scientific-practical student conference	
20	2020.02.05-08	Yerevan Final Workshop on eDrone Technology	See § 5.3.7.6
21	2020.02.26	Yerevan In-House Dissemination Meeting	
22	2020.07.01	Virtual Consortium Meeting 1	See § 5.3.7.8
23	2020.07.29	Virtual conference 2	
24	2020.09.25	Virtual conference 3	
25	2020.10.8-9	Virtual Tbilisi Final Workshop	See § 5.3.7.7



5.3.9 International distinctions and awards received by eDrone project

The MSU eDrone team participated in the XXIIth International Exhibition of Inventions, Research and Technological Transfer „INVENTICA-2018”, and in the XXIIth International Conference of Inventions between June 27-29, 2018 in Iasi, Romania, in the Lost Steps Hall of the "Gheorghe Asachi" Technical University of Iași.

There were presented 530 patents and technology transfer projects, as well as scientific papers related to the innovation and scientific research.

The eDrone project OED, CTT & CIA courses were awarded
Gold Medal & Diploma of Excellence
at XXIIth International Exhibition of Inventions, Research and
Technological Transfer “INVENTICA-2018” &
XXIIth International Conference of Inventions, Iași, Romania
June 27-29, 2018

The participants list included the representatives of universities, research centres, companies and NGOs from different countries, such as Romania, USA, Canada, Egypt, Republic of Moldova, Russian Federation, Poland, and Malaysia.

Moldova State University (MSU) team members of the Erasmus+ eDrone project, Prof. Florentin Paladi and Ms. Tatiana Bulimaga, have participated in the Exposition and Conference.

Among another 14 research and technology transfer projects presented by the MSU, as a recognition of the quality of eDrone project and its impressive deployment results, such as OED & CTT courses, the "INVENTICA-2018" Organizing Committee has awarded **the Gold Medal and Diploma of Excellence for the Erasmus+ "Educational for Drone (eDrone)" project** *Universitatea de Stat din Moldova » Noi succese ale cercetătorilor USM la Expoziția Internațională de Invenții „Inventica 2018”*

(<http://usm.md/?p=19751&lang=ro>).





Fig. 9 - Award from the XXIIth International Conference of Inventions, June 27-29, 2018, Iasi, Romania

The eDrone project OED, CTT & CIA courses were awarded

Silver Medal & Diploma of Excellence

at EUROINVENT-2019 and Book Salon, Iasi, Romania

May 16-18, 2019

The 11th Edition of EUROINVENT – European Exhibition of Creativity and Innovation were held in Iasi, Romania, May 16-18, 2019 at Palace of Culture. The event promotes creativity and innovation in international context. There were presented about 600 patents and projects, as well as scientific books and journals were related to the innovation and scientific research.

The participants list included the representatives of universities, research centres, companies and NGOs from about 45 countries, such as Romania, USA, Canada, Egypt, Portugal, Iraq, Republic of Moldova, Russian Federation, Poland, and Malaysia.

Moldova State University (MSU) team members of the Erasmus+ eDrone project, represented by Ms. Tatiana Bulimaga, have participated in the Exhibition and Book Salon.



Among another 10 elaborations and projects presented by the MSU, as a recognition of the quality of eDrone project and its impressive deployment results, such as OED, CTT & CIA courses, the "EUROINVENT-2019" Organizing Committee has awarded the **Silver Medal and Diploma of Excellence for the Erasmus+ "Educational for Drone (eDrone)" project**.

At the same time, the **Handbook for the CIA courses (Authors: Natalia NEDEOGLO, Corneliu ROTARU, Anton DANICI, Valeriu SEINIC, Veaceslav SPRINCEAN, Constantin VOZIAN, Valeriu CAZAN, Ion CORCIMARI, Eugenia CEBOTARU, Coordinators: Pasquale DAPONTE, Florentin PALADI, Tatiana BULIMAGA)** has awarded the **Diploma of Excellence of the Book Salon**.



Fig. 10 - Awards from the 11th Edition of EUROINVENT – European Exhibition of Creativity and Innovation, Iasi, Romania, May 16-18, 2019

You may find this excellent news on the awards and also shared on the Project web-site [20] and on the Facebook Project page [17].



5.3.10 Project branding and logos



The logo of the *eDrone* project was created in the autumn of 2016, immediately as WP1, the first work-package, started. In the same time, our *eDrone* project coordinator launched the first website this project had – the initial one (<http://www.edrone.UNISANNio.it/>) [19] .

Our project logo represents a golden **drone** (*the subject of the project*) taking off from a **book** (*knowledge arises from education, also in engineering and technology sectors*).







In order to underline the diversity of the partner members of the *eDrone* Consortium, the pages of the book were coloured in the colours of all the national flags of the 17 *eDrone* project partners.







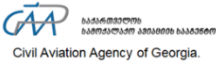




5.3.11 New contacts and networks made through the eDrone project activities

This project enjoyed an excellent rating from the international community of drone users, from all the sectors of civil application of drones. This affirmation is sustained by the important number of associate partners which joined our eDrone project.

Tab. 37 - Associate partners list

Associate Partner	Country	Type	Logo	Contacts
1. „Henri Coandă” Air Force Academy of Brasov	Brasov, Romania	Public		http://www.afahc.ro/ secretariat@afahc.ro
2. „AirWorker” LLC	Yerevan, Armenia	Private		https://www.facebook.com/pages/category/Company/AirWorker-615600188820377/ airworkerinfo@gmail.com
3. „ATS” Aero Technology and System	Minsk, Belarus	Private		http://aerotexsys.by/en/ info@aerotexsys.by
4. „BFUA” Belarusian Federation of Unmanned Aviation	Minsk, Belarus	Public		+375-29-666-96-69
5. „BSAA” Belarusian State Academy of Aviation	Minsk, Belarus	Public		https://bgaa.by/en academy@bsaa.by
6. „BSATU” Belarusian State Agrarian Technical University	Minsk, Belarus	Public		http://www.bsatu.by/en



7.	„CDSESAT” Center for Socio-Economic Development and Innovative Entrepreneurship Support	Chisinau, Moldova	Public		www.cdsesai.eu cdsesai@gmail.com
8.	Copter	Tbilisi, Georgia	Private		http://copter.ge/?lang=en info@copter.ge
9.	DPM Elettronica, s.r.l.	Foggia, Italy	Private		https://www.dpmelettronica.it/ pompatti@dpmelettronica.it
10.	„RPUE” Precise Electromechanics Factory Republican Production Unitary Enterprise	Minsk, Belarus	Private		http://ztem.by/ info@ztem.by
11.	„GCAA” Georgian Civil Aviation Agency	Tbilisi, Georgia	Public		http://www.gcaa.ge/eng/ office@gcaa.ge
12.	Green Flame Tech, s.r.l.	Napoli, Italy	Private		www.greenflametech.com francesco.blosio@greenflametech.com
13.	ICEVO Consulting s.r.l.	Chisinau, Moldova	Private		https://www.facebook.com/DroneRoute/ andrei.covalenco@icevo.md
14.	„IEB NASB” V.F. Kuprevich Institute of Experimental Botany at the National Academy of Science of Belarus	Minsk, Belarus	Public		http://botany.by/ info@export.by
15.	INGO Armenia	Yerevan, Armenia			+374 10 592 121



16.	Instigate Robotics CJSC	Yerevan, Armenia	Private		+374 93 235 615
17.	MES Consulting s.r.l.	Pomigliano D'Arco, Italy	Private		http://www.mesconsulting.it/WP/direction@mesgroup.it
18.	Universitatea de Stat din Tiraspol	Chisinau, Moldova	Public		https://ust.md/ecoropeanu@yahoo.com
19.	Intreprinderea de Stat pentru Silvicultura Chisinau - Agentie Moldsilva	Chisinau, Moldova	Private		http://chisinau.silvicultura.md/iss_chisinau@yahoo.com
20.	Universitatea Tehnică „Gheorghe Asachi” din Iași	Iași, Romania	Public		https://www.tuiasi.ro/international@tuiasi.ro
21.	Kolegji Universum	Prishtinë, Kosovo	Public		https://www.universum-ks.org/info@universum-ks.org
22.	Athena SRL	Benevento, Italy	Private		athena@athenaconsulting.eu
23.	HAWK-E	Katowice, Poland	Private		https://www.hawk-e.pl/biuro@hawk-e.pl
24.	Aviatraining Center CJSC	Yerevan, Armenia	Public		+374 60 37 35 47 http://aviatrainingcenter.am/info@aviatrainingcenter.am



6 Activities to be performed at the final report stage and after closing the Erasmus+ *eDrone* project

6.1 Activities to be performed at the final report stage

At the final report stage we will upload on the Erasmus+ Project Results Platform:

- The final project reports and deliverables,
- An update of the project summary description.

According the requests of Erasmus+, the *eDrone* project partners, as direct beneficiaries will provide a summary description for our project in English at application stage.

This project summary is of particular importance, as it provides a description for the general public. It should therefore be drafted in plain language and clear style, so that the actual content of the project and the acquired results can be quickly understood, also by outsiders.

The following elements will be part of the summary: context/background of the project; objectives of the project; number and profile of participants; description of activities; methodology used in carrying out the project; a short description of the results and impact envisaged; the potential longer-term benefits.

6.2 Activities to be performed after the project will be accomplished

Moreover, after the project will be accomplished, further dissemination will continue (as described above; see § 5):

1. As an important asset of the eDrone project, the networking acquired among the Programme and Partner Countries will continue helping involved HEIs, partners and Associated Partners (see: § 5.3.8), to develop new ideas for future cooperation (see § 1.1.1).

The results produced in this new environment (comprising didactic, scientific and technologic fields) will be further promoted, either by contacting relevant media or as a continuation of the general interest generated by such innovative technological fields as the sectors of civil application of drones are.

Contacting policy-makers will continue. Among the most important and specific exploitation results of the eDrone project we have to point out report [15] which represents the formal regulatory proposal A7.8 – Draft of a formal regulatory proposal (*deliverable*). This proposal draft shall be presented to the policy-makers from the Partner Countries in the field of civil application of drones as one specific exploitation result of the eDrone project, which should have as consequences the improvement of drone regulation in Partner Countries, according with the EU regulations, and with that of the eDrone Programme Countries.



In short, the *eDrone* Project Coordinator and all the Partners will continue to cooperate with the European Commission, by making useful and valuable contributions to the exploitation and dissemination efforts of similar approved projects.



7 Conclusions

As a major component of our *eDrone* project, WP7 *work-package* (of which this A7.1 report is an important deliverable), together with WP6, are devoted to presenting the acquired results from the *eDrone* **exploitation** activities and the dissemination of those accomplished results, respectively.

1. *As a first conclusion, this report (A7.1 – Design of exploitation plan) made a thorough check of the exploitation activities and, as a result, may affirm with certitude that **all exploitation results envisioned in eDrone proposal were attained**.*
2. *The main didactic aim of eDrone project, that to create, in the Partner Countries, specific schools or training centres (Offices for Education for Drones - **OED**) for Vocational Education and Training (**VET**), was accomplished.*

Four new *eDrone* **OEDs** were created in the Partner Countries, as follows (see: § 4.1)

- OED 1 – in Chişinău, Moldova – by P9-MSU,
- OED 2 – in Minsk, Belarus – by P14-BSTU,
- OED 3 – in Yerevan; Armenia – by P13-NPUA,
- OED 4 – in Tbilisi, Georgia – by P16-TSU.

We want to underline here, again, **the foremost contribution of the partner P9-MSU (Moldova State University)** which was the sole responsible for the coordination of **WP4**, the specific work package devoted to OED and technological arrangement set-up, working on the definition of tasks and activities of the OEDs and for preparing the general procedures of purchasing equipment needed to carry out the OEDs activities in the early stages in all the Partner Countries.

3. ***CTT course** (see: § 4.2) was **one of the most successful results** of our *eDrone* project. As Vocational Education and Training (**VET**) providers, all the *eDrone* Consortium partners contributed to organizing two levels of course programs, respectively **CTT** (Course Program for Training the Teachers) and **CIA** (Course Program for Instruction of Attendees). The **CTT** Course program was meant to train the first eDrone teachers, those who, in a second stage of the project turned out to be the professors for the **CIA** Courses, implemented in every Partner Country. Once again, I want to emphasize the **contribution of the partner P9-MSU** which lead the design and implemented both courses and training activities, as the **sole organizer of the CTT courses**. *eDrone* CTT courses were attended so far by around 24 participants, 6 future teachers for CIA courses from each Partner Country (see: § 4.2 - CTT – Course Program for Training the Teachers)*
4. ***eDrone CIA courses were attended so far by around 232 participants** (see: § 3.2.2.1, Tab. 7 - Users of eDrone systems per Application sectors) and delivered to the attendees*



recognized certification, allowing new professionals to work using drones at different qualification levels.

5. We **completed the full list of concrete deliverables – outputs / outcomes** leading to the achievement of the specific objectives of eDrone project (see: Tab. 5 - The deliverables of the eDrone project).



8 References

- [1] A1.1 – State of the art report on last generation technologies for drones and sensors supporting remote control ([deliverable](#))
- [2] A1.3 – Visits to enterprises ([deliverable](#))
- [3] A1.4 – User needs document ([deliverable](#))
- [4] A2.1 – State of Art of drones laws in Programme Countries ([deliverable](#))
- [5] A2.2 – State of Art of drone laws in Partner Countries ([deliverable](#))
- [6] A2.4 – Regulatory needs report ([deliverable](#))
- [7] A6.3 – Dissemination workshops ([deliverable](#))
- [8] A7.1 – Design of exploitation plan ([deliverable](#))
- [9] A7.2 – OED CIA promotion ([deliverable](#))
- [10] A7.3 – Internship promotion ([deliverable](#))
- [11] A7.4 – Promotion of start-ups ([deliverable](#))
- [12] A7.5 – Public-private collaboration ([deliverable](#))
- [13] A7.6 – Promotion and **exploitation** of the ICT platform ([deliverable](#))
- [14] A7.7 – Proposal for recognition of the courses degree ([deliverable](#))
- [15] A7.8 – Draft of a formal regulatory proposal ([deliverable](#))
- [16] <https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/574090-EPP-1-2016-1-IT-EPPKA2-CBHE-JP> - eDrone on the Erasmus+ Project Results Platform
- [17] <https://www.facebook.com/pg/eDroneProject/> - eDrone page on Facebook
- [18] https://twitter.com/eDrone_Project - eDrone page on Twitter
- [19] <http://www.edrone.UNISANNio.it/> - Initial (First) version of the eDrone web-site
- [20] <http://www.edroneproject.org/> - Actual (Extended) version of the eDrone web-site



9 Annexes

Annex A.1 eDrone Moodle e-learning Platform

Annex A.1.a How to Access eDrone Moodle e-learning Platform

On the main page of the eDrone website, www.edroneproject.org [18], please click on the side menu, on the submenu of *ICT didactical framework*.

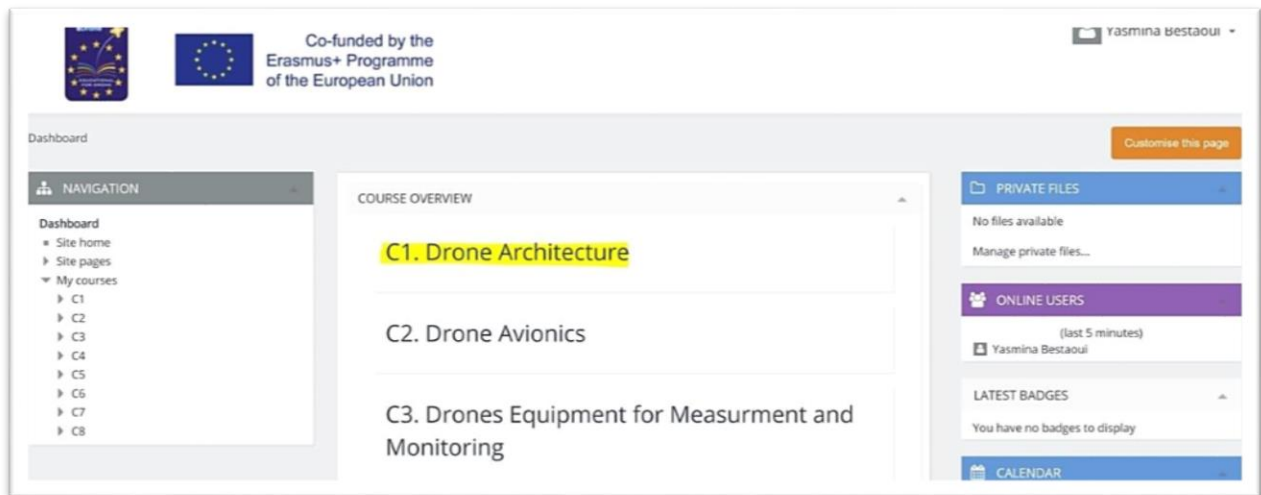


- The URL for eDrone eLearning Platform is <http://www.edroneproject.org/moodle/>
After Login, you will be shown the list of your courses.

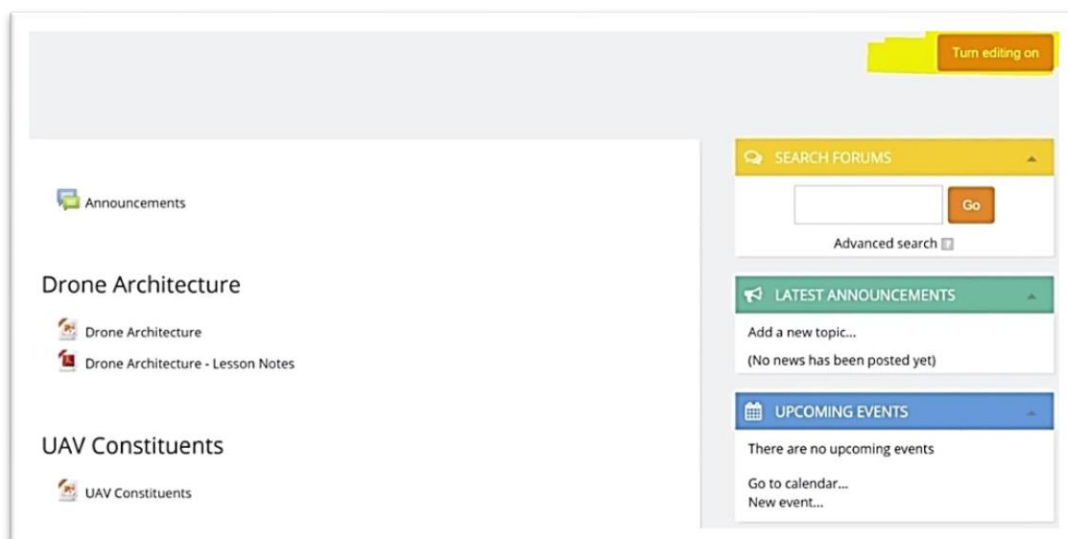


Annex A.1.b *How to Add Moodle Resources*

- Please select the course you need to add Resources.

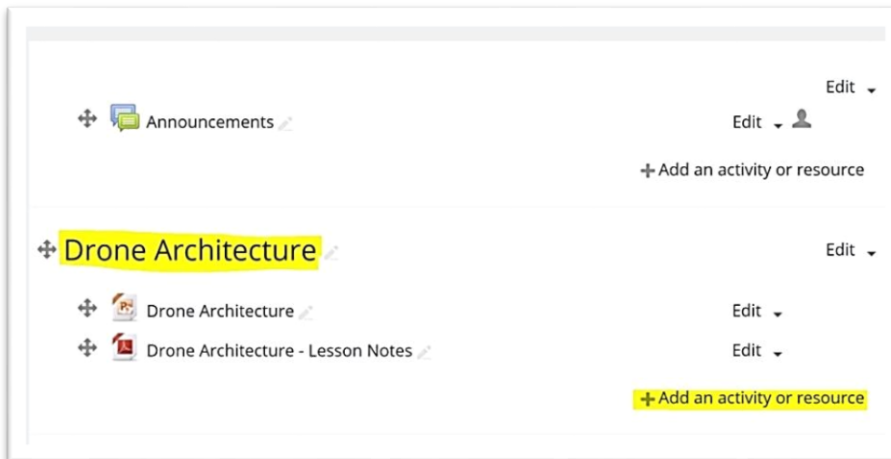


- The course is already structured in 10 Modules. Click on „Turn Editing On” in order to start the editing process.



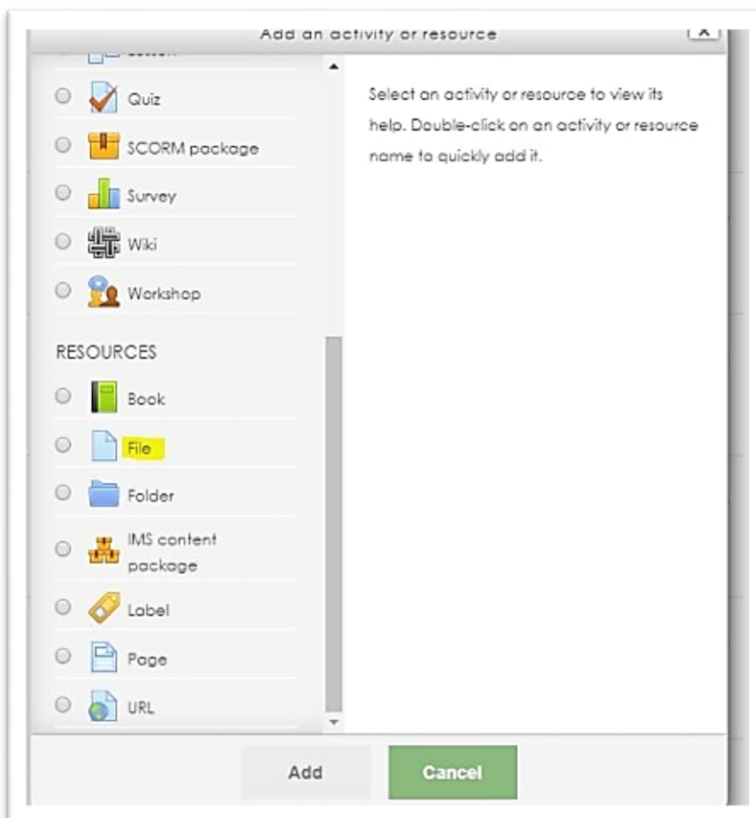
- You can modify the name of the module clicking on the name.





In order to add resources, click on „Add an activity or resource”.

- You can add content as PDF file or PPT presentation.



Please select „File” item from the list, then click on „Add” button.

- In the next page you can upload the file.



▼ General

Name*

Description

Display description on course page ☐

[?](#)

Select files

Maximum size for new files: 1000 MB

You can drag and drop files here to add them.

Please fill the form with the mandatory fields. In order to upload the file, you can „*drag and drop*” the file in the related field. Please wait for upload to finish and then click on „*Save and return to course*”.



Annex A.2 OED Press Releases - incl. web-site links

Annex A.2.a OED 1 – MSU Press Releases - incl. web-site links

<i>Communication Tool</i>	<i>Performance Indicator</i>	<i>OED 1 MSU</i>
Conferences/workshops/events	▪ Number of participants	200
	▪ Number of presenters	20
Press and Mass-media releases	▪ Mentions in the press, mass-media	17

Tab. 38 - OED 1 - MSU Press Releases - incl. web-site links

Press Releases - incl. web-site links	
1. TV interviews have been realized by the MSU eDrone team, in order to disseminate the eDrone project, the CIA courses and the OED	
1.	Participation in the news program about the eDrone project and the CTT courses developed in the OED at Moldova State University http://edroneproject.org/index.php/news/145-10-july-2018-rtr-moldova-tv-channel-about-the-edrone-project-activities
2.	Participation in the TV program about the local innovative organizations and people https://locals.md/2018/v-kishineve-otkryilas-laboratoriya-po-obucheniuyu-pilotirovaniyu-dronov/
3.	Participation in the TV program about the local innovative organizations and people http://edroneproject.org/index.php/news/140-a-new-website-talk-about-edrone-laboratorul-de-pilotare-a-dronelor
4.	Participation in the news program about the eDrone project and the CTT courses developed in the OED at Moldova State University https://www.jurnaltv.md/news/cb2c99344f172a3e/moldova-incepe-educatia-pentru-drone.html
5.	Participation in the news program about the eDrone project and the CTT courses developed in the OED at Moldova State University http://edroneproject.org/index.php/news/139-another-moldovan-national-tv-channel-jurnal-tv-about-the-edrone-project-current-activities
6.	Participation in the news program on national TV channel about the eDrone project and the CIA courses developed in the OED at Moldova State University https://www.facebook.com/watch/?v=254678038445829
7.	Participation in the news program on national TV channel about the eDrone project and the CIA courses developed in the OED at Moldova State University http://edroneproject.org/index.php/news/137-edrone-on-the-moldovian-tv-channel-tvr-moldova



8.	<p>Participation in the news program on national TV channel about the eDrone project and the CIA courses developed in the OED at Moldova State University:</p> <p>http://media-azi.md/ro/stiri/how-cum-s%C4%83-pilot%C4%83m-drona?fbclid=IwAR1jGl60Wv4gMfTYI0LPhxzwnQk7oaCUQXLmdU1AUigteuY7qXvZ_aUeXCU</p>
9.	<p>Participation in the news program about the eDrone project and the CTT courses developed in the OED at Moldova State University</p> <p>http://edroneproject.org/index.php/news/145-10-july-2018-rtr-moldova-tv-channel-about-the-edrone-project-activities</p>
<p>2. Internet posts on the www.usm.md web-site, for dissemination and exploitation purpose</p>	
1.	<p>September 7th 2018 a new reunion of the Moldovan partners in order to distribute the CIA courses among the trained teachers from Moldova</p> <p>http://usm.md/?p=19969&lang=ro</p>
2.	<p>26 November 2018 - CIA courses started at Moldova State University</p> <p>http://www.edroneproject.org/index.php/news/164-26-november-2018-cia-courses-started-at-moldova-state-university</p>
3.	<p>11.02.2019 final exam of the first edition of CIA course and announcement of the start of the second edition of CIA course</p> <p>http://www.edroneproject.org/index.php/news/169-11-february-2019-final-exam-of-the-first-edition-of-cia-course-and-announcement-of-the-start-of-the-second-edition-of-cia-course</p>
4.	<p>04.03.2019: Start of the 2nd edition of the eDrone CIA courses at the Moldova State University</p> <p>http://www.edroneproject.org/index.php/news/170-monday-march-4th-2019-start-of-the-2nd-edition-of-the-edrone-cia-courses-at-the-moldova-state-university</p>
5.	<p>16-18.05.2019 The eDrone project OED, CTT & CIA courses were awarded Silver Medal and Diploma of Excellence at EUROINVENT-2019 and Book Salon</p> <p>http://www.edroneproject.org/index.php/news/174-the-edrone-project-oed-ctt-cia-courses-were-awarded-silver-medal-and-diploma-of-excellence-at-euroinvent-2019-and-book-salon</p>
6.	<p>03.06.2019: 2nd edition of the eDrone CIA courses at the Moldova State University congratulates the graduates!</p> <p>http://www.edroneproject.org/index.php/news/177-monday-june-3rd-2019-2nd-edition-of-the-edrone-cia-courses-at-the-moldova-state-university-congratulates-the-graduates</p>
7.	<p>28.06.2019: The Tiraspol State University has attended an introductory training course for drone in the framework of eDrone activities</p> <p>http://www.edroneproject.org/index.php/news/178-28-june-2019-the-tiraspol-state-university-has-attended-an-introductory-training-course-for-drone-in-the-framework-of-edrone-activities; https://www.facebook.com/photo.php?fbid=2320859647959825&set=a.661689250543548&type=3&theater</p>



8.	02.03.2020 The 4th CIA course was successfully accomplished at the OED at Moldova State University http://www.edroneproject.org/index.php/news/190-02-03-2020-the-4th-cia-course-was-successfully-accomplished-at-the-oed-at-moldova-state-university
9.	September 7th 2018 a new reunion of the Moldovan partners in order to distribute the CIA courses among the trained teachers from Moldova http://usm.md/?p=19969&lang=ro
10.	November 26, 2018 - CIA courses started at Moldova State University http://www.edroneproject.org/index.php/news/164-26-november-2018-cia-courses-started-at-moldova-state-university
11.	The official launch of the eDrone Project on February 13-15 2017 in Yerevan http://usm.md/?p=15916&lang=ro
12.	On the 4th of June 2018 - The official launch of the CTT Courses in Chisinau http://usm.md/?p=19341&lang=ro
13.	On the 4th of June 2018 - The official launch of the CTT Courses in Chisinau http://www.edroneproject.org/index.php/news/130-monday-june-4th-2018-start-of-the-ctt-course-at-moldova-state-university-2
14.	14 Jun 2018: His Excellency Bartłomiej Zdaniuk, Ambassador Extraordinary and Plenipotentiary of the Republic of Poland to the Republic of Moldova has visited the Office for Education for Drones (OED) at the Moldova State University. His Excellency Bartłomiej Zdaniuk, Ambassador Extraordinary and Plenipotentiary of the Republic of Poland to the Republic of Moldova has visited the Office for Education for Drones (OED) at the Moldova State University. In His visits, the Ambassador has strong supported and encouraged eDrone project activities and the international collaboration http://usm.md/?p=19456&lang=ro



3. **MSU** has used the following dissemination materials for the eDrone project and its activities:



- Flyers (disseminated through the exhibitions, symposiums, events etc.)
- Posters (disseminated through the exhibitions, symposiums, events etc.)
- Roll-up of the project
- Calendars with CIA courses promotional material (disseminated through the exhibitions, symposiums, events etc.)

https://drive.google.com/drive/u/0/folders/1do-PI1V3gsW_ac6XxHFWB-5vRQwikJfj

Annex A.2.b OED 2 – BSTU Press Releases - incl. web-site links

Communication Tool	Performance Indicator	OED 2 BSTU
Conferences/workshops/events	▪ Number of participants	300+
	▪ Number of presenters	25+
Press and Mass-media releases	▪ Mentions in the press, mass-media	11

Tab. 39 - OED 2 - BSTU Press Releases - incl. web-site links

Press Releases - incl. web-site links	
TV interviews have been realized by the BSTU eDrone team, in order to disseminate the eDrone project, the CIA courses and the OED	
	<p><i>Participation in the news program about the eDrone project and the CTT courses developed in the OED at BSTU</i></p> <p>https://www.tvr.by/news/obshchestvo/v_akademii_mvd_budut_gotovit_spetsialistov_po_borbe_s_prestupleniyami_v_sfere_vysokikh_tekhnologiy/?sphrase_id=1524969</p>
	<p><i>Participation in the news program about the eDrone project and the CTT courses developed in the OED at BSTU</i></p> <p>http://www.ctv.by/novosti-minska-i-minskoy-oblasti/obzor-na-360-zachem-studentov-bgtu-uchat-upravlyat-bespilotnikom</p>
Internet posts on the BSTU web-site, for dissemination and exploitation purpose (https://www.belstu.by/)	

1. BSTU use the university site: <https://www.belstu.by/> and page of the department of organization of production and real estate economics, section “news” for dissemination and exploitation purpose: <https://www.belstu.by/faculties/ief/opien/news.html>.
2. Belarusian newspapers are also used to disseminate information.

Presentation of OED office and CIA courses for representatives of housing and communal services:

<https://www.belstu.by/news/university/prezentaciya-centra-dlya-raboty-s-bespilotnikami-dlya-zhkh.html>





Presentation of CIA-courses:

<https://blog.tam.by/s-ponedelnika-menyayu-zhizn-top-kursov-po-professiyam-budushhego/>

CIA-7th edition:

https://www.belstu.by/news/education/obuchenie-operatorov-bespiotnyx-letatelnyx-apparatov_1.html



<https://bgtu.tam.by/novosti/obuchenie-operatorov-bespiotnyh-letatelnyh-apparatov/#news>

Workshop in Yerevan, Feb 6–8, 2020

<https://www.belstu.by/faculties/ief/opien/news/information/predstaviteli-bgtu-prinyali-uchastie-v-rabochei-vstreche-v-ramkax-mezhdunarodnogo-proekta-erasmus-obrazovatelnaya-sreda-dlya-dronov-v-g-erevan-armeniya.html>



Associate Partners



Workshop in Yerevan, Feb 6–8, 2020:

<https://bgtu.tam.by/novosti/predstaviteli-bgtu-prinyali-uchastie-v-rabochei-vstreche/#news>



Results of the visit of BSTU workers to the universities of Yerevan (Republic of Armenia)

<https://bgtu.tam.by/novosti/itogi-vizita-rabotnikov-bgtu-v-universitety-erevanarespublika-armeniya/#news>





CIA-6th edition:

<https://www.belstu.by/faculties/ief/opien/news/information/obuchenie-operatorov-mbla-multirotornogo-tipa.html>



CIA 5th edition:

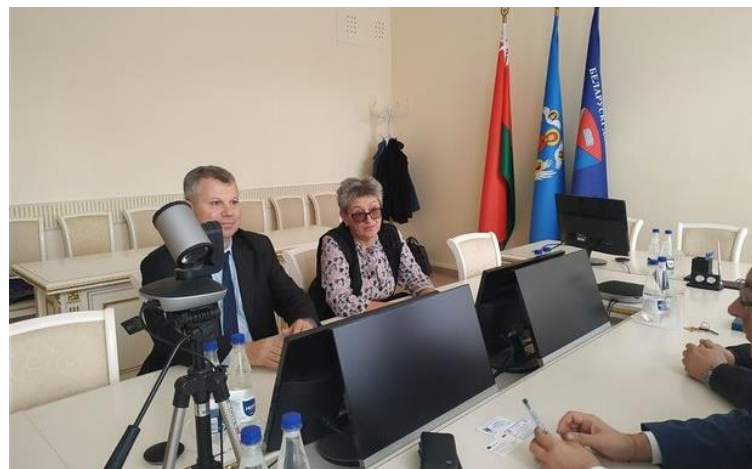
<https://www.belstu.by/faculties/ief/opien/news/information/obuchenie-operatorov-bespilotnykh-letatelnykh-apparatov.html>

<https://bgtu.tam.by/novosti/kursy-po-podgotovke-operatorov-bespilotnykh-letatelnykh-apparatov-proshli-v-ipkip/#news>





Visit of the representatives of the Moldavian State University to BSTU
<https://bgtu.tam.by/novosti/vizit-predstavitelei-moldavskogo-gosudarstvennogo-universiteta/#news>



Meeting with the rector of the Moldavian State University
<https://www.belstu.by/faculties/ief/opien/news/information/vstrecha-s-rektorom-moldavskogo-gosudarstvennogo-universiteta.html>





CIA-2nd edition

<https://www.belstu.by/faculties/ief/opien/news/information/provedeny-obuchayushhie-kursy-po-podgotovke-operatorov-mbla-multirotornogo-tipa.html>



Presentation of CIA-courses at the TIBO exhibition

<https://www.belstu.by/faculties/ief/opien/news/information/prezentaciya-obuchayushhix-kursov-po-podgotovke-operatorov-mbla-multirotornogo-tipa-na-tibo-2019.html>





CIA-1st edition:

<https://www.belstu.by/faculties/ief/opien/news/information/provedeny-pervye-obuchayushhie-kursy-po-podgotovke-operatorov-mbla-multirotornogo-tipa.html>



Press-release Workshop in BSTU (Minsk, Belarus) Apr 1–4, 2019

<https://www.belstu.by/faculties/ief/opien/news/information/proekt-obrazovatel'naya-sreda-dlya-dronov.html>





Presentation of CIA-courses:

<https://dev.by/news/dron-obuch>



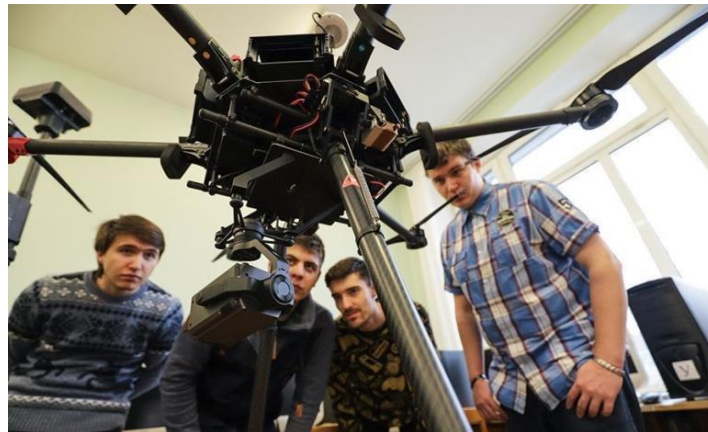
Presentation of CIA-courses

<https://www.sb.by/articles/v-bgtu-sozdali-uchebnyy-tsentr-dlya-spetsialistov-v-sfere-ispolzovaniya-bespilotnykh-letatelnykh-app.html>





<https://www.belstu.by/faculties/ief/opien/news/information/specialistov-po-bespilotnikam-budut-uchit-v-belorusskom-gosudarstvennom-technologicheskoy-universitete.html>



Presentation of CIA-courses in «Sovetskaya Belarus»

<https://www.sb.by/articles/derzhi-dron-vyshe.html>





Workshop in BSU:

<https://www.belstu.by/faculties/ief/opien/news/information/dvuxdnevnyi-seminar-obrazovatel'naya-sreda-po-dronam.html>



Cooperation with the Belarusian Federation of Unmanned Aviation

<https://www.belstu.by/faculties/ief/opien/news/information/vstrecha-kafedry-s-belorusskoi-associaciei-bespilotnoi-aviacii.html>





Presentation of CIA-courses in «Belarusian Forest Newspaper»
<http://lesgazeta.by/people/tehnologii/v-bgtu-rasskazhut-kak-priruchit-dron>



BSTU has used the following dissemination materials for the *eDrone* project and its activities

- Flyers (disseminated through the exhibitions, symposiums, events etc.);
- Booklets (disseminated through the exhibitions, symposiums, events etc.);
- Posters (disseminated through the exhibitions, symposiums, events etc.).



Annex A.2.c OED 3 – NPUA Press and Mass-media Releases - incl. web-site links

Communication Tool	Performance Indicator	OED 3 NPUA
Conferences/ workshops/ events	▪ Number of participants	4
	▪ Number of presenters	12
Press and Mass-media releases	▪ Mentions in the press, mass-media	17 (1+16)

The seventeen mass-media releases consist in:

1. The interview of Prof. Hrachya Karapetyan (NPUA) to the radio “Hay Dzain”
2. We had also 19 links of NPUA (unfortunately NPUA has removed the old archive)

Tab. 40 - OED 3 - NPUA Press Releases - incl. web-site links

Press Releases - incl. web-site links	
Radio Interview	
1.	Radio Interview of prof. Hrachya Karapetyan to the radio “Hay Dzain”
2.	The two-day workshop within the framework of Educational for Drones (eDrones) project was finished at Polytechnic university https://polytech.am/2020/02/07/%d5%ba%d5%b8%d5%ac%d5%ab%d5%bf%d5%a5%d5%ad%d5%b6%d5%ab%d5%af%d5%b8%d6%82%d5%b4-%d5%a1%d5%be%d5%a1%d6%80%d5%bf%d5%be%d5%a5%d6%81-educational-for-drone-edrone-%d5%ae%d6%80%d5%a1%d5%a3/
3.	The representatives of the Belarusian State Technological University were hosted at the Polytechnic https://polytech.am/2020/02/07/%d5%ba%d5%b8%d5%ac%d5%ab%d5%bf%d5%a5%d5%ad%d5%b6%d5%ab%d5%af%d5%b8%d6%82%d5%b4-%d5%b0%d5%b5%d5%b8%d6%82%d6%80%d5%a8%d5%b6%d5%af%d5%a1%d5%ac%d5%a5%d6%81%d5%ab%d5%b6-%d5%a2%d5%a5%d5%ac%d5%a1%d5%bc%d5%b8/
4.	eDrone project workshop started at Polytechnic https://polytech.am/2020/02/06/%d5%ba%d5%b8%d5%ac%d5%ab%d5%bf%d5%a5%d5%ad%d5%b6%d5%ab%d5%af%d5%b8%d6%82%d5%b4-%d5%b4%d5%a5%d5%af%d5%b6%d5%a1%d6%80%d5%af%d5%a5%d6%81-edrone-%d5%ae%d6%80%d5%a1%d5%a3%d6%80%d5%ab-%d5%b7%d6%80%d5%bb/
5.	The 2nd Stage of "UAV Training" Course Launched https://asue.am/en/news/phase-2-of-the-drone-training-course-kicks-off
6.	Tour and Presentation of the "Unmanned Aerial Vehicle Training" Course Within the Frames of eDrone Project (photos) https://asue.am/en/news/a-tour-and-presentation-of-the-unmanned-aerial-vehicle-training-course-as-part-of-the-edrone-project-photos



7.	New Cooperation Opportunities Within eDrone project https://asue.am/en/news/new-ways-to-collaborate-within-the-edrone-project
8.	ASUE Representatives Attended the Opening of the "Unmanned Aerial Vehicle Training" Course https://asue.am/en/news/representatives-participated-in-the-opening-of-the-unmanned-aerial-vehicle-training-training
9.	ASUE Representatives Participated in Another Workshop of eDrone Project https://asue.am/en/news/asue-representatives-participated-in-the-regular-edrone-workshop
10.	ASUE Representatives Attended Workshop on eDrone Technology in Minsk https://asue.am/en/news/asue-representatives-attended-edrone-workshop-in-minsk
11.	eDrone Project Presentation for Students of Marketing Specialty https://asue.am/en/news/students-of-marketing-faculty-get-informed-about-edrone-program-get-involved-in-the-process-of-developing-proposals
12.	Working visit to Minsk within the eDrone project https://asue.am/en/news/working-visit-minsk-within-edrone-project
13.	Educational for Drone (eDrone). ASUE lecturers have been trained in Italy https://asue.am/en/news/educational-drone-asue-lecturers-trained-italy
14.	ASUE Employees Participated in Coordination Meeting of eDrone Project https://asue.am/en/news/news-107
15.	ASUE Hosted In-House Dissemination Event https://asue.am/en/news/news-140
16.	Workshop of eDrone Project https://asue.am/en/news/news-361
17.	ASUE as a Participant of eDrone Project https://asue.am/en/news/news-575

Annex A.2.d OED 4 – TSU Press Releases - incl. web-site links

Tab. 41 - OED 4 - TSU Press Releases - incl. web-site links

Press Releases - incl. web-site links	
TV interviews have been realized by the TSU eDrone team, in order to disseminate the eDrone project, the CIA courses and the OED	
	Participation in the news about the eDrone project and the CTT courses developed in the OED at: https://tsu.ge/ge/study/oc9veccgztnb_glie/blferevz2twldvtxr/2f4fizbukl24epeug//
	Information about eDrone protect - https://edrone.tsu.ge/
	Information about OED TSU eDrone Laboratory at TSU www.edrone.tsu.ge/

P16-TSU uses the university site: <https://www.tsu.ge> and also the special web-site that was especially created for our eDrone Project: <https://www.edrone.tsu.ge/>.



In social media, OED 4 – TSU is broadly represented: our *eDrone* Facebook page for dissemination and exploitation purpose is broadly used and therefore all the news, events, actions, etc. related to the *eDrone* project are uploaded there:

EDrone Laboratory at TSU/ [დრონების ლაბორატორიის თსუ-ში](https://www.facebook.com/distancelearning2017/)
(<https://www.facebook.com/distancelearning2017/>).

The general information about the project, its aim and the project web page you can see on the following link:

https://tsu.ge/ge/study/oc9veccgztmb_glie/blferevz2twldvtxr/2f4fizbukl24epeug//

On social media we published also information about the CTT trainings in Moldova and about the Georgian Internship in Poland.

Moreover, information about 1st edition of CIA was published in the following link –
https://tsu.ge/ge/study/oc9veccgztmb_glie/blferevz2twldvtxr/2f4fizbukl24epeug//

Information about 2nd CIA edition was published in the following link - www.edrone.tsu.ge
and on the FB page:

[eDrone Laboratory at TSU/ დრონების ლაბორატორიის თსუ-ში](https://www.facebook.com/distancelearning2017/)



Annex A.3 Internship Stages Activities

Annex A.3.a P1-UNISANN (internship students from Georgia – in Italy)

The 6 internship students of the **eDrone team from Armenia** (future CIA teachers) which participated at the Internship organized by P1-UNISANN were:

- Lilit Dadayan
- Argam Artashyan
- Vadim Grigoryan
- Hrachya Karapetyan
- Grigor Babayan
- Zhanna Yesayan

They are affiliated to the two HEIs from Armenia, respectively: NPUA and ASUE. During their internship stage in Italy they had the following training agenda:

Internship eDrone – UNISANN

Educational Program (30th September – 12th October 2018)

- 30 September 2018 Sunday
Arrival (ASUE participants)
- 1 October 2018 Monday
 - 9.30 Presentation of the University's places. *Location: Palazzo Bosco main entrance.*
 - 12.30 Lunch time
 - 14.30 lesson of prof. ROSSI and presentation, with the use of power point of the ASUE participants' activities. *Location: SEA*
 - 17.30 Return to the hotel
- 2 October 2018 Tuesday
 - 9.30 lesson of prof. ROSSI. *Location: SEA*
 - 12.30 Lunch time
 - 14.30 lesson of prof. ROSSI. *Location: SEA*
 - 17.30 Return to the hotel and Arrival (NPUA participants)
- 3 October 2018 Wednesday
 - 9.30 Presentation, with the use of power point of the participants' activities (both ASUE and NPUA): *Location: SEA*
 - 11.00 Presentation, with the use of power point of the UNISANN activities.
 - 12.00 Visit to UNISANN's laboratory. *Location San Vittorino*
 - 12.30 Lunch time
 - 14.30 Project assignment. *Location: San Vittorino*



15.00 Practical lesson on the use of drones and mission planning.

17.30 Return to the hotel

- 4 October 2018 Thursday

9.00 Appointment to *Piazza Guerrazzi*: Participants are transferred to the fly camp

10.00 Practical fly lesson

12.30 Lunch time (lunch self-provided by participants)

14.30 Practical fly lesson

17.30 Return to the hotel

- 5 October 2018 Friday

9.00 Appointment to *Piazza Guerrazzi*: Participants are transferred to Cusano Mutri

10.00 Acquisition of the images

12.30 Lunch time (lunch self-provided by participants)

14.30 Visit Cusano Mutri

17.30 Return to the hotel

- 6 October 2018 Saturday

Free time

- 7 October 2018 Sunday

Free time

- 8 October 2018 Monday

9.30 DronesBench: Theory. Location: Palazzo Bosco, “*Laboratorio di Informatica*” 1st floor.

12.30 Lunch time

14.30 Practical lesson on the use of DronesBench. *Location San Vittorino*

17.30 Return to the hotel

- 9 October 2018 Tuesday

9.30 Working on the assigned project. *Location San Vittorino*

12.30 Lunch time

14.30 Working on the assigned project. *Location San Vittorino*

17.30 Return to the hotel

- 10 October 2018 Wednesday

9.30 Working on the assigned project. *Location San Vittorino*

12.30 Lunch time

14.30 Working on the assigned project. *Location San Vittorino*

17.30 Return to the hotel

- 11 October 2018 Thursday

9.00 Appointment to *Piazza Guerrazzi*: Participants are transferred to the enterprise

10.00 Visit to enterprise

12.30 Lunch time.

14.30 Working on the assigned project. *Location San Vittorino*



17.30 Return to the hotel

- 12 October 2028 Friday

9.30 Presentation of Eng. Alberto Mennellis – TopView. *Location San Vittorino*

12.30 Lunch time

14.30 Final presentation of the projects

17.30 Return to the hotel

- 13 October 2018 Saturday

Departure of ASUE participants

- 14 October 2018 Sunday

Free time

- 15 October 2018 Monday

Departure of NPUA participants

Internship photo aspects







Annex A.3.b **P3-UNIEVRY** (*internship students from Moldova – in France*)

As of September 24th, our group started the internship at the University of Evry, following the scheduled roadmap of the *eDrone* - Education for Drone CTT.

At the initial meeting we have been familiarized with the university's lab and handed the schedule for the two weeks to follow, our main objectives being:

- Getting deeper into UAV piloting
- Building a UAV from scratch
- Doing the initial setup and getting the UAV to a fully functional state

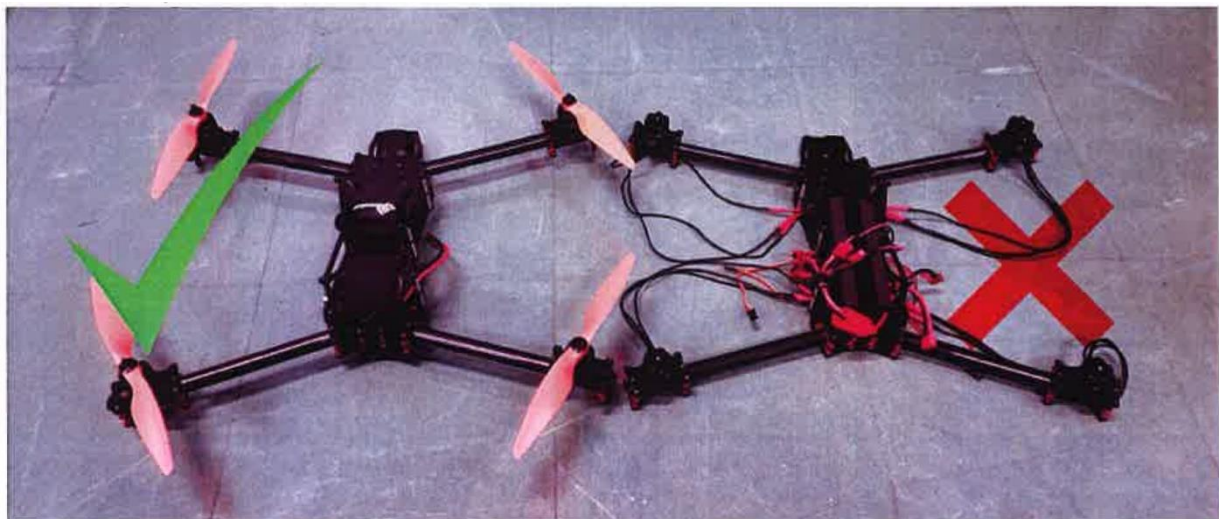
As an addition to the above we have been instructed to perform a flight simulation (SITL), inside a GCS software pack, in our case UGCS.





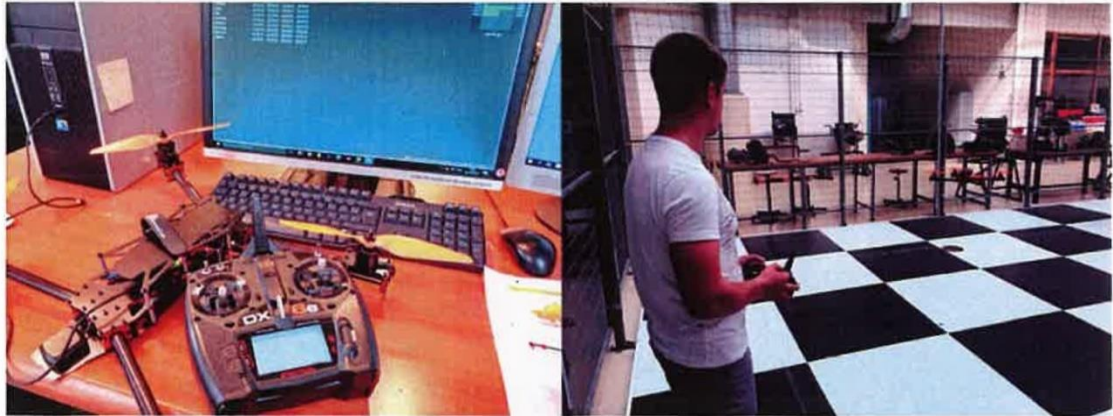
It took us quite some time to manage to assemble a Lynxmotion HQQuad500 kit, the main goal of the process being to obtain a clean and professional looking wiring, while maintaining the highest level of integrity and symmetry along the whole structure.

In the below illustration, a difference can be clearly observed, between the frame assembled by our team members, compared to assemblies made by our predecessors.

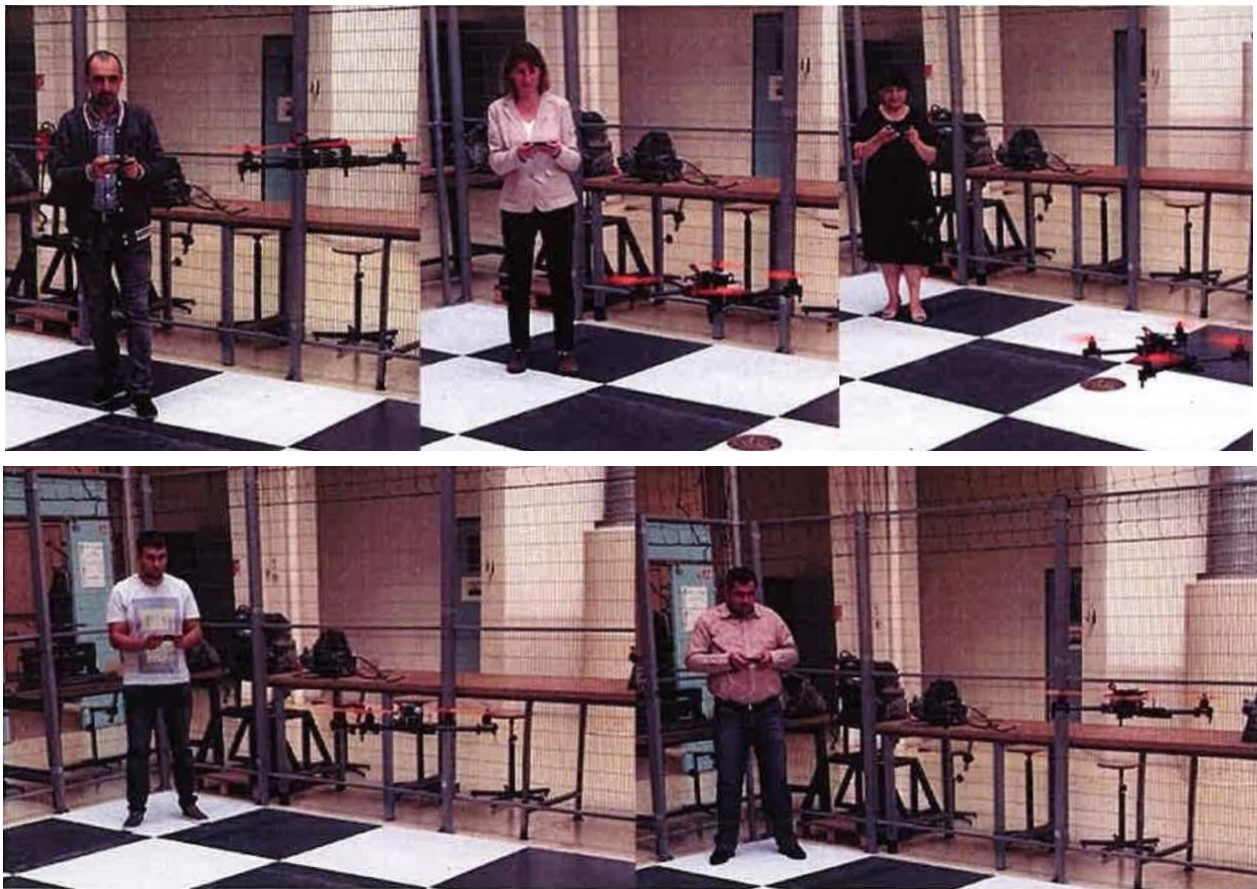


Taking the next step, we have set the installed FCU, provided along with the kit Lynxmotion Quadrino NANO. Via a proper firmware flasher and GUI setup software we have installed Xquad firmware and set the PIDs along with RC control rates to some conservative values, good enough for performing the maiden flight of the UAV.





After that the maiden flight was performed. All seemed fine and we could rise up the PIDs for a crisper control loop, then all of our team members managed to fly the UAV in a safe and controllable manner.



After achieving an astonishing performance out of the HQuad500 UAV, our team members had a chance to try and apply their skills in piloting a micro-sized quad-copter made



by Parrot drones, controlled via BT (Bluetooth). It happened to be a very entertaining experience.



After obtaining 100% success rate in building, debugging and piloting UAVs, we have proceeded to work with UGCS software, in terms of planning a virtual survey mission, simulating it in Software in the Loop way (SITL) and confirming its viability.

The area for the virtual survey mission was chosen, considering our latest travelling experience to Paris - Champ-de-Mars, the immediate vicinity of the Eiffel tower.



A polygon defining the area of interest was created. After that, a mission with a given set of settings, for a proper and uniform coverage of the surface, was generated, consisting of: a Take-off, grid pattern flight, RTL (return to launch) with a landing.

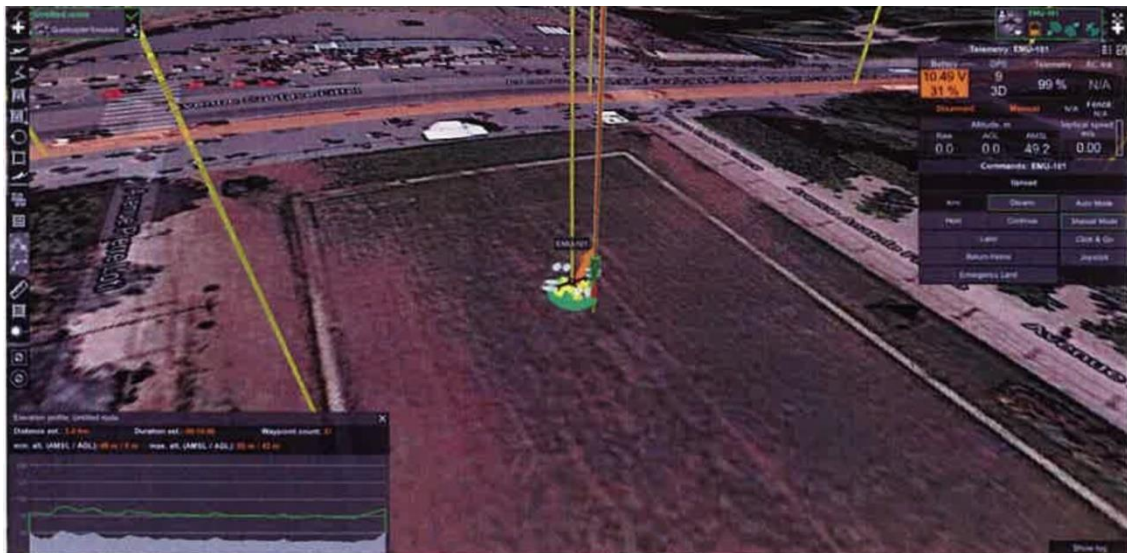


The SITL (Software in the Loop) simulation was triggered, using a virtual multicopter, with a pre-set airspeed of 5m/s for take-off and landing phases and 10m/s for the area grid survey flight waypoints. The virtual UAV had to be armed and switched into AUTO flight mode to trigger the mission execution.





After the virtual grid following part of the mission was complete, the simulated UAV returned to the launch position and performed a safe and controlled landing.



As it can be observed from the log report in the simulation, the total travelled distance is around 3km, mission duration about 10 minutes and 37 passed waypoints. With about 30% of battery capacity left, we consider the simulated mission a success and feel free to use the gained skills for forming a set of procedural templates for future, more complex missions, for surveying even more challenging environment.

During our internship lab works at Université d'Évry, we have enforced our skills and self-awareness in the continuously emerging drone industry, and are really looking forward to start applying our knowledge in real life operations and for training students.



The internship students of the **eDrone team from the Republic of Moldova** which participated at the Internship organized by P3-UNIEVRY were composed by:

Tab. 42 - eDrone team of the Republic of Moldova

	<i>Name</i>	<i>Affiliation</i>
1.	<i>Nedeoglo Natalia</i>	<i>MSU</i>
2.	<i>Sprincean Veaceslav</i>	<i>MSU</i>
3.	<i>Cebotaru Eugenia</i>	<i>AAP</i>
4.	<i>Corcimari Ion</i>	<i>ACAPOL</i>
5.	<i>Seinic Valeriu</i>	<i>SAUM</i>
6.	<i>Vozian Constantin</i>	<i>CAA</i>
7.	<i>Cazan Valeriu</i>	<i>CAA</i>

Annex A.3.c P4-MUT (internship students from Armenia – in Poland)

EDUCATIONAL FOR DRONE INTERNSHIP REPORT

Warsaw 2018

The Military University Technology in Warsaw Poland (P4) delivered a fourteen days internship on drones' technology and drone pilot license acquisition in the period from 28 September to 11 October 2018. The MUT hosted the 6 Georgian teachers from Ilia State University (ISU – P15) and Ivane Javakhishvili Tbilisi State University (TSU – P16) during the internship activities of CTT devoted explicitly to the acquirement of a drone pilot license and technical aspects of drones development.

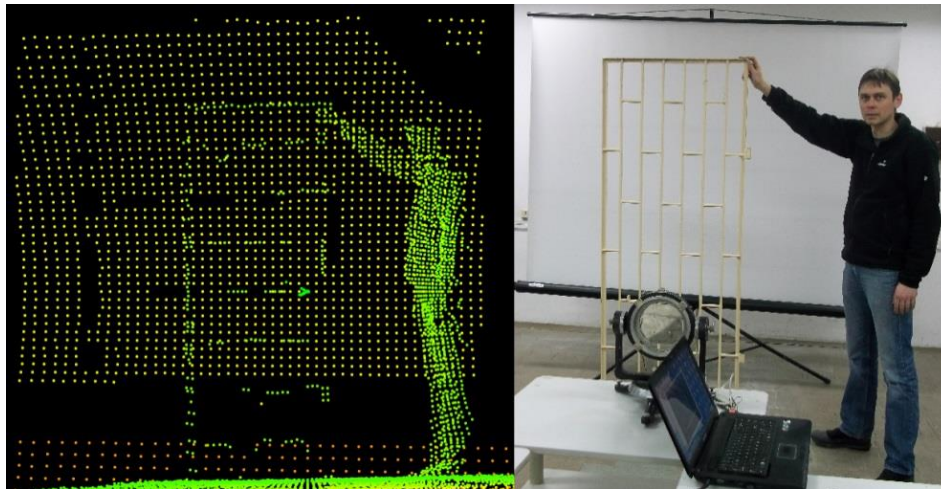
The attendees of the internship:

Name	Affiliation
<i>Avtandili Mgebrishvili</i>	<i>Ilia State University</i>
<i>Goga Saatashvili</i>	<i>Ilia State University</i>
<i>Nana Dikhaminjia</i>	<i>Ilia State University</i>
<i>Shota Barbakadze</i>	<i>Iv. Javakhishvili Tbilisi State University</i>
<i>Mikhail Makhviladze</i>	<i>Iv. Javakhishvili Tbilisi State University</i>
<i>Andro Gelashvili</i>	<i>Iv. Javakhishvili Tbilisi State University</i>

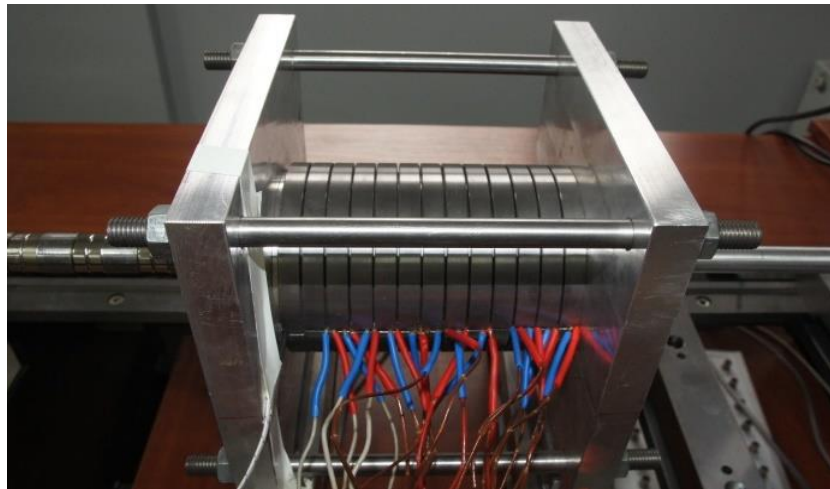


Day 1

The trainees participated in laboratory exercises on UAV avionics and air armament including:



Machine vision



Magnetic bearings for UAV power drives





Simulations



Drones' tests



Drone test beds





Day 2

The trainees participated in laboratory exercises on automatics and robotics for UAV application including:





Industry robots for drones manufacturing

Day 3

The trainees attended an official meeting with the MUT authorities



After the meeting they participated in laboratory exercises on simulation technologies and virtual reality in UAV applications.



Day 4

The trainees participated in laboratory exercises on logistics for UAV systems and sports activities for military UAV systems' crew including:



Parkour



Aerobic training



Cross fit training



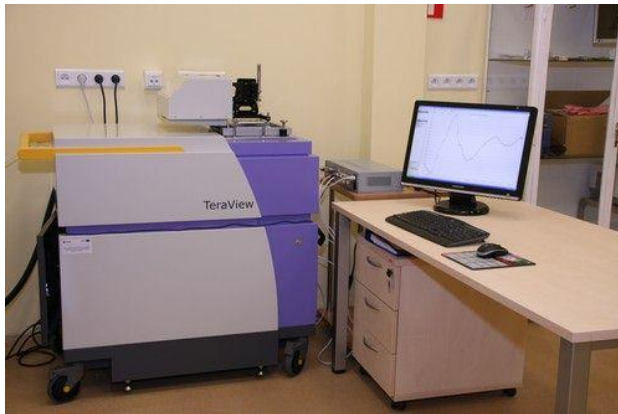
Day 5

The trainees participated in laboratory exercises on innovative nanomaterial for UAV airframe designing.



Day 6

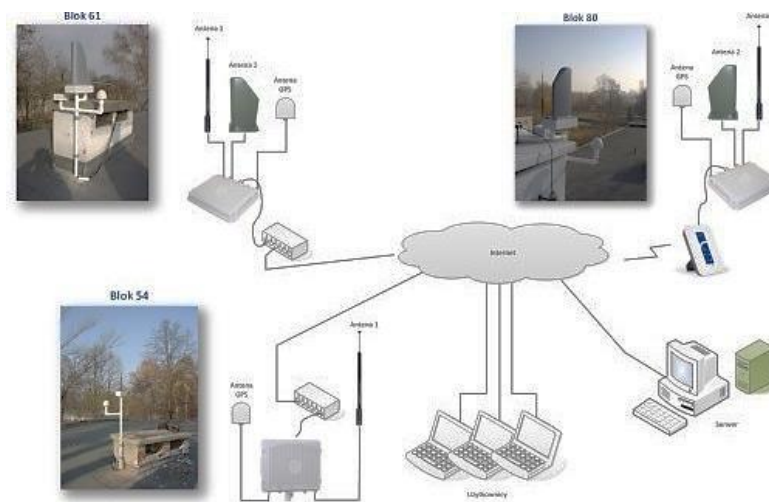
The trainees participated in laboratory exercises laboratory on optoelectronics devices for UAV payload and laboratory on electronic warfare in anti-drone systems including:



THz technology



Thermo vision technology

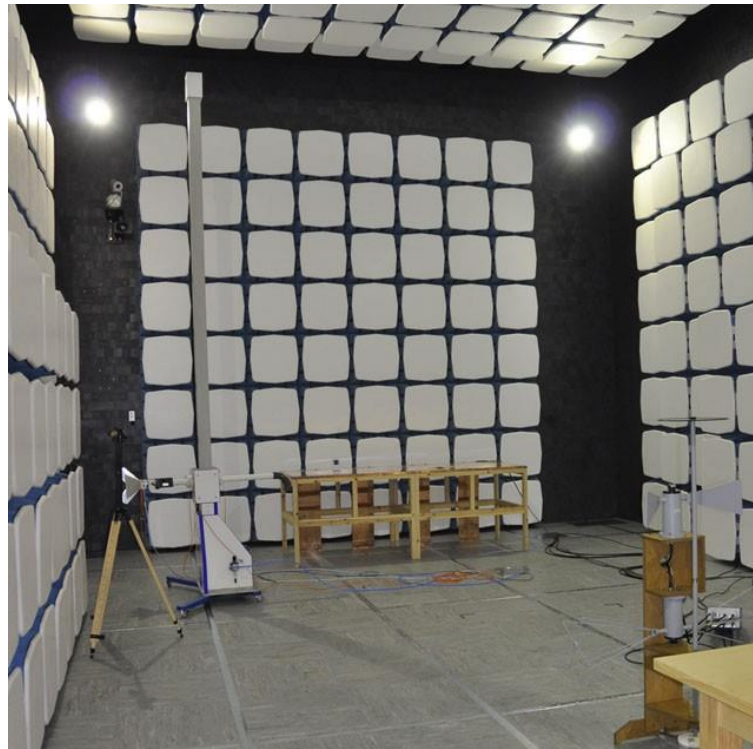


Anti-drone monitoring systems



Day 7

The trainees participated in laboratory exercises laboratory on Laboratory on acoustic sensors for anti-drone countermeasures, Laboratory on Unmanned Ground Vehicles and Laboratory on incremental technology in 3D printing center including:



Anechoic chamber





Unmanned ground vehicles testing



Day 8

The trainees attended an official meeting with the authorities of the Faculty of Mechatronics and Aerospace



After the meeting they participated in laboratory exercises on manned and unmanned aircraft structure analysis in the air shed



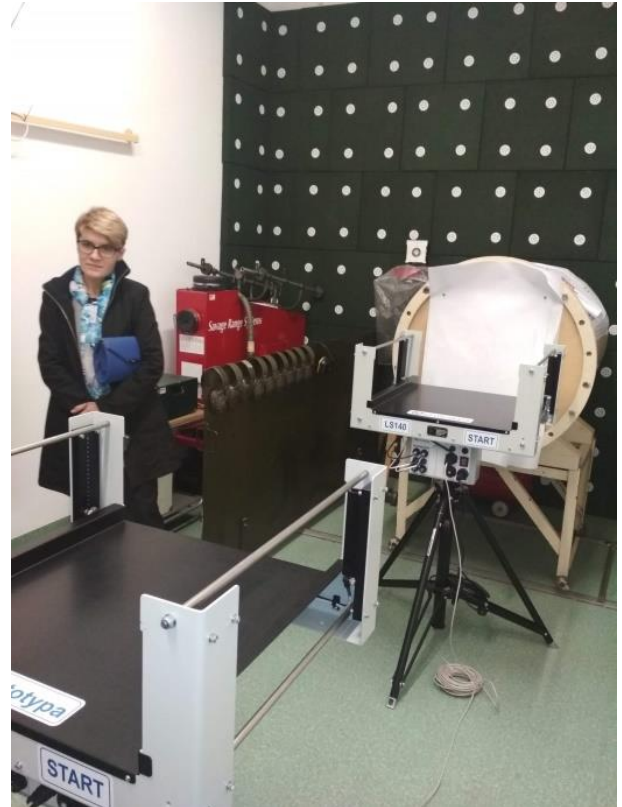
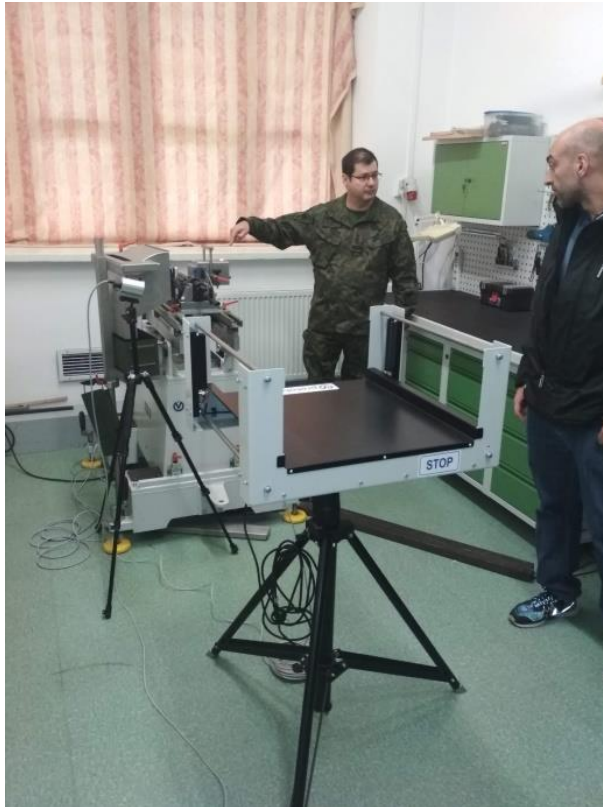
Day 9

The trainees participated in laboratory exercises laboratory on small arms and high energetic anti-drone systems and laboratory on UAV propulsion systems including:



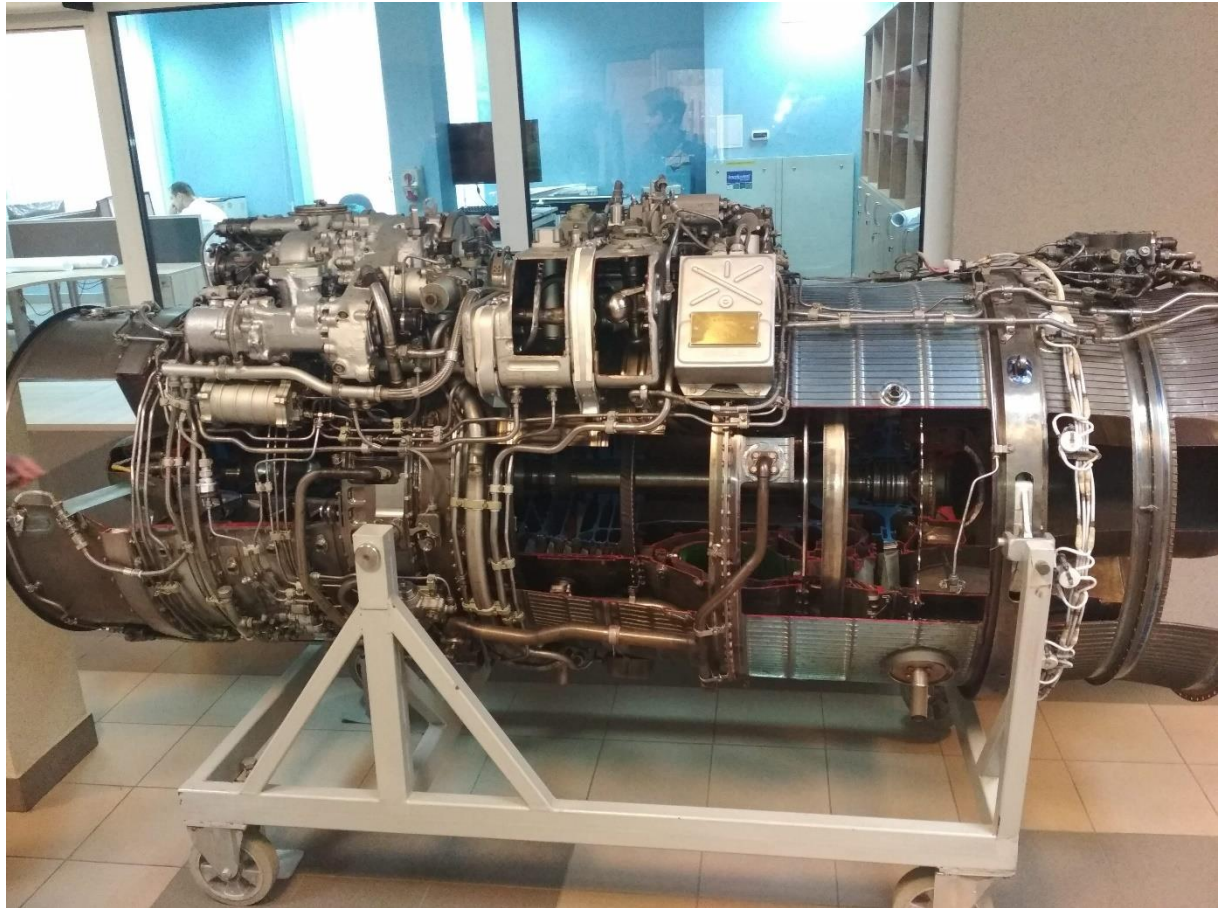
Small arms laboratory





Anti-drone system test site





Propulsion laboratory



Day 10

The trainees participated in laboratory exercises on small Unmanned Aerial Vehicles and laboratory on testing and prototyping UAV air-frame:



Water tunnel testing



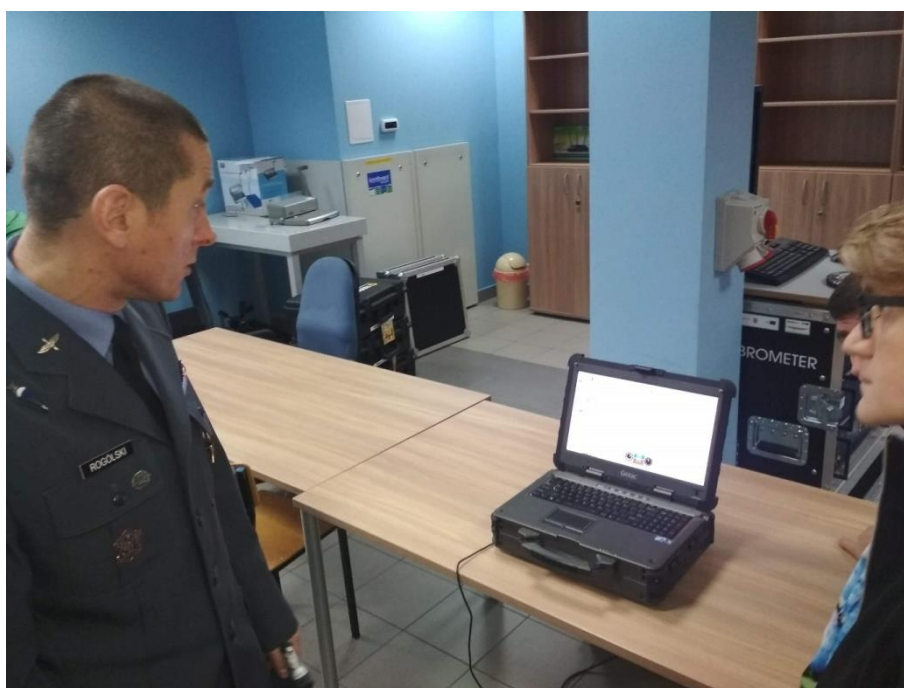


Wind tunnel tests including





Small UAV designing



Ground control station designing



The last day final meeting concluded with the following points:

- Technical background is required for UAV maintenance staff, UAV pilots-operators as well as UAV payload-operators
- UAV technology is built based on various disciplines of knowledge
- The drone operator course should be provided with a basic technical program.

Annex A.3.d **P5-UNIGAL (internship students from Belarus – in Romania)**

P5-UNIGAL internship for Belarus CIA teachers, Oct. 1-12, 2018

Between 1 - 12 October 2018, at the „Dunărea de Jos” University of Galați, partner P5-UNIGAL, in the frame of ERASMUS+ project with the title „Educational for Drone” (*eDrone*), was held the first internship stage for Belarus students, the future teachers for the BSTU CIA courses, organized in Minsk, at the *Office for Education for Drones (OED 2 - BSTU)*.

This internship organized in Romania included both courses and applied laboratories, conducted within the Faculty of Engineering and Agronomy of Braila (FIAB), part of UNIGAL. Also the internship programme had also drone applications, which took place in the field and, moreover included a visit to a major Romanian drone manufacturer, in Bucharest.

The theme of the internship followed, as general framework, the course structure developed during WP3 (work-package 3) of our *eDrone* project, for CTT type courses (Courses for Training the Teachers). These courses were developed by all Consortium partners at the first Office for Education for Drones, hosted by Moldova State University (**OED 1 - MSU**).

The Romanian internship, from UNIGAL, was organised having in mind the first 6 Belarusian teachers of the future CIA drone education course to be similarly established by the *eDrone* project in Minsk, at **OED 2 - BSTU**.

The 6 students from the Belarusian State University (BSU) (future Minsk CIA teachers), which participated at the UNIGAL internship, were:

- Alexander Spiridonau,
- Dmitry Ushakov,
- Sergey Leshkevich,
- Svetlana Ermakovich,
- Elina Tcherniavskaya
- Vera Ermakovich.

The coordinators and teachers of this internship on civil application of drones, which participated in this educational stage, the first of its kind in Romania, were selected among the members of the *eDrone* project team of P5-UNIGAL:



- Assoc. prof. Florin Nedelcuț,
- Assoc. Prof. Niculai Hauk,
- Assist. Prof. Răzvan Șolea,
- Assist. Prof. Silviu Epure.

Bellow, one may see a copy of a Certificate of participation at this internship stage organized by P5-UNIGAL.



Fig. 11 – Certificate of participation at the internship stage organized by P5-UNIGAL

Together with them, the internship activities were also attended by following Romanian teachers, members of FIAB:

- Assoc. Prof. Adrian Leopa,
- Assist. Prof. Anca Șerban,
- PhD student Eng. Valentin Bărdăhan.

Assoc. Prof. PhD eng. Florin Nedelcuț

Responsible for eDrone project from UNIGAL

Internship Agenda

Tab. 43 - Internship Agenda – week 1

INTERNSHIP, P5-UNIGAL											
Associate Partners											

1-12 OCTOBER, 2018

Venue of the stage:

University „Dunărea de Jos” of Galați

Engineering and Agronomy Faculty of Braila, 29, Călărașilor Street, Brăila

Week 1

Delegation (part 1) Arrival and Accommodation Braila – Sunday - 30/09/2018

AGENDA			
DAY	TIME	TOPIC	P ESENTER
Monday, October 1 st	9.00 – 9.30	Delegates registration	
	9.30 – 10.00	Welcome addresses	Dean of Faculty
	10.00 – 11.00	Presentation of faculty laboratories related to drone topic	F. Nedelcuț N. Hauk
	11.00 – 12.00	Travel to the University Rectorate in Galati	Vice Rector of University
	12.00 – 16.00	Visit of universities laboratories. Presentation of sensors used on drones.	K. Uzuneanu S. Epure R. Solea
	16.00 – 17.00	Travel to Braila	
Tuesday 2 October	9.00 – 12.00 & 13.00 – 17.00	Theoretical presentation - sensors - equipment - related software - applications	S. Epure R. Solea F. Nedelcut N. Hauk
Wednesday 3 October	9.00 – 13.00	Simulated flight on computers Flight preparation	S. Epure V. Bardahan
	14.00 – 17.00	Real flight in open field data collection	S. Epure V. Bardahan F. Nedelcuț N. Hauk
Thursday October 4 th	9.00 – 14.00	Data processing Interpretation of results	F. Nedelcuț
	15.00	Departure to Bucharest	
Friday October 5	10.00 – 15.00	Visit of a drone factory (AFT) in Bucharest	A. Lupu (UVSR) F. Nedelcuț

Delegation (part 1) Departure and Accommodation to Minsk – Sunday - 06/10/2018

Tab. 44 - Internship Agenda – week 1

Week 2

Delegation (part 2) Arrival and Accommodation Braila – Sunday - 07/10/2018

AGEND



DAY	TIME	TO IC	PRESENTER
Monday, October 8	9.00 – 9.30	Delegate registration	
	9.30 – 10.00	Welcome addresses	Dean of Faculty
	10.00 – 11.00	Presentation of faculty laboratories related to drone topic	F Nedelcut N. Hauk
	12.00 – 17.00	Theoretical presentation - sensors - equipment - related software - applications	S Epure R. Solea F Nedelcut N. Hauk
Tuesday October 9	9.00 – 13.00	Simulated flight on computers Flight preparation	S. Epure V. Bardahan
	14.00 – 17.00	Real flight in open field Data collection	S Epure V. Bardahan F. Nedelcut N. Hauk
Wednesday October 10	9.00 – 14.00	Data processing Interpretation of results	F Nedelcut
	15.00	Departure to Bucharest	
Thursday October 11	10.00 – 15.00	Visit of a drone factory (AFT) in Bucharest	A. Lupu (UVSR)

Delegation (part 2) Departure and Accommodation to Minsk – Sunday - 12/10/2018



Belarus internship attendees

Tab. 3 – List of Belarus attendees



2018 UNIGAL INTERNSHIP
Galați& Brăila, September 29 - October 12
LIST OF BELARUS ATTENDEES*

	Partner University (BSU / BSTU)	Name & Surname	Date and time		Plane-1, Car-2, Bus-3, Other-4	Braila ¹ / Bucharest ² Booking Hotels:	email	ID documents details (pas.)
			Arrival	Departure				
1	BSU	Alexander Spiridonau	September 29	October 6			sansan@tut.by	MP 3593205
2	BSU	Dmitry Ushakov	September 29	October 6			UshakovDV@bsu.by	MP 4153523
3	BSU	Sergey Leshkevich	September 29	October 6			LeshkevichS@bsu.by	MP 1742868

¹ September 29 – October 11
² October 11 – October 12



4	BSU	Svetlana Ermakovich	October 7	October 12			Ermakovich@bsu.by	MP 3241605
5	BSU	Elina Tcherniavskaia	October 7	October 12			tcherniavskaielina@gmail.com	MP 4017866
6	BSU	Vera Ermakovich	October 7	October 12			Ermakovich@bsu.by	MP 3616091

*Please fill and send to fmedelcut@ugal.ro before September 7



Associate Partners



ROMÂNIA
MINISTERUL EDUCAȚIEI NAȚIONALE
UNIVERSITATEA „DUNĂREA DE JOS” DIN GALAȚI



September 17, 2018

To: Prof. Vladimir A. SAETCHNIKOV
Belarusian State University,
Belarus

Dear Prof. Vladimir A. SAETCHNIKOV,

It is our pleasure to inform you that the following members of your eDrone ERASMUS+ project, including: Mr. Alexander Spiridonau, Mr. Dmitry Ushakov, Mr. Sergey Leshkevich, Mrs. Svetlana Ermakovich, Mrs. Elina Tcherniavskaia and Mrs. Vera Ermakovich, as Belarusian partners of the eDrone project, are invited, in the period from 29.09.2018 - 13.10.2018, by Dunărea de Jos University of Galati, Romania, to attend the internship we will organize as eDrone P5 Partner (UNIGAL).

The above-mentioned internship stage is a part of the Courses for Training Teachers (CTT) in the framework of the Erasmus+ project "EDUCATIONAL FOR DRONE" (eDrone, 574090-EPP-1-2016-1-IT-EPPKA2-CBHE-JP).

Please note that the Belarusian State University is partner (P17) in the eDrone project, and your visit to the Dunărea de Jos University of Galati is therefore supported by the Belarusian State University in the framework of this Erasmus+ project.

The aim of the eDrone Erasmus+ project is to define a learning environment to deliver more opportunities to access new competences related to the use of drone technologies in professional activities. The main objective is to provide higher education institutions in the Partner Countries, including Belarus, with effective and efficient instruments to setup Offices for Education for Drones (OED).

The Program Countries transfer their know-how and expertise for the achievement of the eDrone objectives by trainings the future teachers of the OED from Partner Countries, including Belarus, and by supporting them in the first edition of the OED.

Sincerely,

Assoc. Prof. PhD Eng. Florin NEDELCUȚ
P5-UNIGAL eDrone ERASMUS+ Partner,
Dunărea de Jos University of Galati,
Romania

Red: F. Nedelcuț, tel. +40 744 70 43 30

Str. Domnească nr.47, cod postal 800008, Galați, România, tel: +40 336 130 109, fax: +40 336 461 353, e-mail: rectorat@ugal.ro, web: www.ugal.ro
Operator înscris sub nr. 36338 în registrul de evidență a prelucrărilor de date cu caracter personal.

1/1

Fig. 12 – Invitation made by P5-UNIGAL for 6 participants from Belarus (P17-BSU) to the eDrone internship stage in Brăila, Romania



P5-UNIGAL Internship photo aspects

