

Country GR	Institution Hellenic Air Force Academy (HAF A)	Non-Common Module Unmanned Aerial Systems (UASs)	ECTS 2.0
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Service ALL	Minimum Qualification of Instructors
Language English	

- **Officers:**
 - English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG Level 3.
 - Relevant expertise on Unmanned Aerial Systems as pilot or technician.
 - Experience of collaboration with multinational military personnel.
- **Civilian Lecturers:**
 - English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG Level 3.
 - Expertise on relevant topics.
 - Relevant academic publications.

Prerequisites for international participants:	Goals of the Module
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- English: Common European Framework of Reference for Languages (CEFR) Level B1 (preferably B2) or NATO STANAG Level 2.
- At least 1 year of national (military) higher education.

- Basic principles of the technologies supporting the Unmanned Aerial Systems (UASs) and their applications.
- Specification and classification of different UAS categories, types, and sensors used for civilian and military applications.
- Different perspectives for integrating UAS to CSDP missions.
- Technologies and challenges to counter malicious use of UAS.

Learning outcomes	Knowledge	<ul style="list-style-type: none"> • Knows the basic principles of the technologies involved in UAS. • Understands the trends and challenges related to UAS. • Knows the modern threats and technologies to counter hostile UAS.
	Skills	<ul style="list-style-type: none"> • Analyses the configuration and components based on the application. • Is able to incorporate UAS to CSDP missions. • Explains the legal and ethical issues related to UAS.
	Responsibility and autonomy	<ul style="list-style-type: none"> • Takes some responsibility for analysing available technological solutions for improving UAS capabilities. • Takes some responsibility for applying new technologies regarding future UAS applications to CSDP missions. • Examines and correctly assesses UAS technologies and challenges.

Verification of learning outcomes
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- **Observation:** Throughout the module students will be presented all technologies involved in Unmanned Aerial Systems and they will discuss the given topics in the plenary and present teamwork results. During these work students are evaluated to verify their performance.
- **Evaluation:** Group presentations of given topics related to UAS technologies and applications. Working groups will focus on the basic description and characteristics of a selected subject.
- **Test:** Written exam at the end of the Module.

Module Details		
Main Topic	Recom- mended WH	Details
Introduction to Unmanned Aerial Systems (UAS)	4	<ul style="list-style-type: none"> History Terminology Types & Categories EU & NATO Classification
Aerodynamics, Automated Control Systems and Flight Techniques	5	<ul style="list-style-type: none"> Basic Aerodynamic principles Automated Control Systems and Autonomy Air Traffic Control & Flight Rules Flight Safety Human factor
Anatomy, Communications and Sensors	5	<ul style="list-style-type: none"> Vehicle's main parts and subsystems Communications and Control Station Gimbals & Payloads Sensors types
European Institutional Framework	2	<ul style="list-style-type: none"> EU decisions U-Space National Regulations
UAS Applications & CSDP Missions	6	<ul style="list-style-type: none"> Remote Sensing Applications. UAS civilian applications Crisis Management and Disaster Response Law enforcement & Security
Military UAS missions and Unmanned Combat Aerial Vehicles (UCAV)	6	<ul style="list-style-type: none"> History of military UAS applications Military UAS capabilities Modern UAS military missions Unmanned Combat Aerial Vehicles (UCAV) or Lethal Drones Challenges and Ethics
Counter UAS	5	<ul style="list-style-type: none"> Modern threats and challenges Detection and tracking Technologies Passive defence Active defence
Total	33	
Additional hours (WH) to increase the learning outcomes		
Self-Studies	27	<ul style="list-style-type: none"> Preparation for the upcoming lessons and for exam(s). Reflection of the topics issued. E-learning may also be counted to the self-studies.
Total WH	60	The detailed amount of hours for the respective main topic is up to the course director according to national law or home institution's rules. During which topic(s) the syndicate elaborations and presentations will take place is up to the course director.



List of Abbreviations:

- CEFR Common European Framework of Reference for Languages
 ECTS European Credit Transfer and Accumulation System
 NATO North Atlantic Treaty Organization
 STANAG Standardization Agreement
 WH Working Hour
 ICT Information and Communications Technology
 CSDP Common Security and Defence Policy
 EU European Union
 UAS Unmanned Aerial System
 UAV Unmanned Aerial Vehicle
 UCAV Unmanned Combat Aerial Vehicles
 UASs Unmanned Aerial Systems