67th IG MEETING, Brussels – 09th of September, 2025

LoD 13 Session
SCIENCE & TECHNOLOGY EDUCATION

FR FASFA , BG RNDC, GR HAFA, BE RMA, IT IT_AoS, PL WAT, RO MTA

LoD 13 SCIENCE & TECHNOLOGY EDUCATION

1. About participants
2. Past & Future activities:
    - International Technical Semester EuCTSds 2025 (16 Feb – 21 Jun 2025)
    - BIP IMINT/GEOINT ANALYSIS (30 Jun – 04 Jun 2025)
    - Military Science and Technical CSDP Module (FR FASFA 10-14 Feb 2025)
    - KA2 project Digital Mathematics Applied in Defence & Security Education
3. Future activities:
    - BIP Ballistics CM (internal, external, terminal)
    - BIP Integrated Avionics and Weapon Systems: Simulation, Testing and Field Deployment for UAV Platforms
    - International Technical Semester EuCTSds 2026 (BG NMU Shumen?)
    - BIP Optoelectronic Systems for Defence and Security (draft)

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2.4 KA2 project DIGITAL MATHEMATICS APPLIED IN DEFENCE AND SECURITY EDUCATION

- **Pilot Course for Mathematics-based Scenarios in Defence and Security Education (for teachers and students):**
- **Transnational project meeting**
- **Dissemination of the DIMAS Survey**

Participating universities:

- ✓ Romania (RO): Military Technical Academy "Ferdinand I"
- ✓ Bulgaria (BG): Vasil Levski National Military University – Faculty of Artillery, Air Defence and Computer and Information Systems
- ✓ Greece (GR) : Hellenic Army Academy
- ✓ Poland (PL): Military University of Technology
- ✓ Italy (IT): Universita Degli Studi di Torino

SURVEY FOR TEACHERS

Survey of Available Digital Mathematics Tools

We will be very grateful if you share the link with teachers who teach Mathematics and related applications.
Access to a Google profile is required.

https://forms.gle/2YiiiqpZtuUjSRPY6

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Conclusions

Achievements 2025
International Technical Semester (multidisciplinary, intercultural learning)
BIP IMINT/GEOINT Analysis (data fusion & operational decision-making)
Military Science & Technical CSDP Module
KA2 Project – Digital Mathematics in Defence Education

Future Plans 2026
Ballistics CM (interior, exterior, terminal)
Integrated Avionics & Weapon Systems – UAV simulations & deployment
International Technical Semester (NMU Shumen)
Optoelectronic Systems CM (night vision, thermal, laser-based technologies)

Key Values
Interdisciplinary integration of engineering, computer science & military studies
Multinational cooperation & intercultural competencies
Preparing future officers & engineers for **innovation, interoperability & responsibility**

For details see next slides…

QUESTIONS?

SUGGESTIONS?

RECOMMENDATIONS?

2.1. INTERNATIONAL SEMESTER
"European Common Technical Semester for Defence and Security"

European Security and Defence College

No.	Subjects		ECTS
1	Applied Informatics	Basic Engineering (6 ECTS)	3
2	Applied Automation for Engineering Systems		3
3	Integrated Weapon Systems	Military Science (6 ECTS)	3
4	Common Security and Defence Policy		3
5a	Computer Networks	Electronic Engineering and Computer Science (12 ECTS)	3
6a	Programming Languages		3
7a	Signal Processing		3
8a	Microcontrollers		3
5b	Propulsion Systems	Mechanical and Aerospace Engineering (12 ECTS)	3
6b	Dynamic of Flight		3
7b	Mechanics and Material Science		3
8b	Computer-Aided-Design and Numerical Analysis		3
9	Interdisciplinary Scientific Project		6
10	Intercultural Communication	Supplementary subjects (4 ECTS)	2
11	Physical Education and Sports		2
TOTAL			34

2.1 INTERNATIONAL TECHNICAL SEMESTER EuCTSds 2026

Period	Code	Disciplines		ECTS	Your option
16.02 – 20.02.2026 23.02 – 27.02.2026	MS01	Common Security and Defence Policy		3	
02.03 – 06.03.2026 09.03 – 13.03.2026	BE01	Applied Informatics		3	
16.03 – 20.03.2026 23.03 – 27.03.2026	BE02	Applied Automation for Engineering Systems		3	
30.03 – 02.04.2026	EI01	O1. Signal Processing		3	
	MA01	O2. Mechanics and Material Science			
03.04 –14.04. 2026	CATHOLIC&ORTHODOX EASTER 2026				
15.04 – 17.04.2026	EI01	O1. Signal Processing		-	-
	MA01	O2. Mechanics and Material Science			-
20.04 – 25.04.2025	ICom	Intercultural Communication		2	
	-	INTERNATIONAL STUDENTS' CONFERENCE CERC 2026			-
27.04 – 30.04.2026 04.05 – 08.05.2026	EI02	O1. Programming Languages		3	
	MA02	O2. Dynamic of Flight			
11.05 – 15.05.2026 18.05 – 22.05.2026	EI03	O1. Computer Networks		3	
	MA03	O2. Propulsion Systems			
25.05 – 29.05.2026 02.06 – 05.06 2026	EI04	O1. Microcontrollers		3	
	MA04	O2. Computer-Aided-Design and Numerical Analysis			
08.06 – 12.06.2026 15.06 – 19.06.2026	MS02	Integrated Weapon Systems		3	
22.06 – 26.06.2026	Scientific Project Evaluation				
	Re-evaluation of the International Technical Semester				
16.02 – 19.06.2026 (1 day/week) 22.06 – 26.06.2026	Proj	Scientific Project	O1.1. Electronic and Communication Engineering	6	
			O1.2. Computer Sciences and Cyber Security		
			O2.1. Armament Systems and Military Engineering		
			O2.2. Aerospace and Transport Engineering		
16.02 – 19.06.2026	Sport	Physical Education and Sports		2	
TOTAL				34	

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2.2 BIP IMINT/GEOINT ANALYSIS (30 Jun – 04 July 2025)

Learning outcomes	Knowledge	• Describe the basic concepts of GEOINT related to military training in security and defence. • Identify the methods based on the fusion or integration of multiple forms of data collected from satellite and airborne sensors, along with a wide variety of other digital geographic information.
	Skills	• Apply GEOINT/IMINT analyses to provide critical spatial information to a decision-making process that is necessary for meaningful actions and decisions. • Design and implement scenarios based on Geospatial Intelligence (GEOINT) analysis and exploitation of EO and SAR HR Imagery.
	Responsibility and autonomy	• Analyse the quality of scenarios based on IMINT/GEOINT concepts. • Examine the correctness of the use of IMINT/GEOINT concepts in the decision-making process of the military actions or peacekeeping missions.

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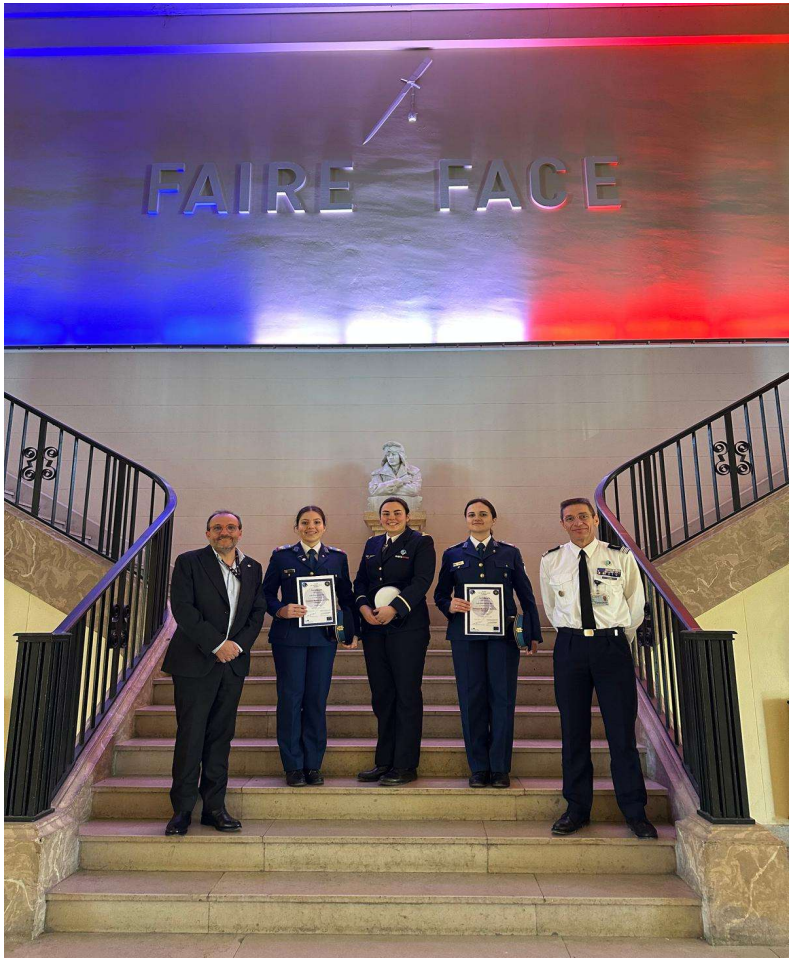
2.3 Military Science and Technical CSDP Module (FR FASFA 10-14 Feb 2025)



3.1 Ballistics CM (internal, external, terminal)

Learning outcomes	
Knowledge	• Demonstrate understanding of the principles and phenomena governing interior, exterior, and terminal ballistics, with a focus on the operational characteristics of ballistic systems used in army, air, and naval forces. • Explain the physical and mathematical models underlying the trajectory, stability, and impact behaviour of projectiles in various ballistic phases, adapted to both small- and large-calibre weapon systems.
Skills	• Analyse the ballistic performance of different weapon systems using appropriate theoretical and computational tools, including trajectory simulation and impact analysis for defence and security applications. • Evaluate the performance of army, air, and naval armament systems, integrating considerations specific to interior, exterior, and terminal ballistics.
Responsibility and autonomy	• Demonstrate autonomy in conducting ballistic assessments and simulations to support informed decisions regarding the use, adaptation, or development of weapon systems in various operational contexts. • Assume responsibility for the accuracy, safety, and ethical implications of applying ballistic knowledge in the design and evaluation of defence and security technologies.

3.2 Integrated Avionics and Weapon Systems:
Simulation, Testing and Field Deployment for UAV Platforms – CM draft

Learning outcomes

- Understand integrated avionics architectures in UAV platforms
- Operate and evaluate SITL/HITL simulations
- Apply practical skills in real UAV deployments and data interpretation
- Draw functional links between avionics and weapons system interfaces

3.3. INTERNATIONAL SEMESTER
"European Common Technical Semester for Defence and Security"
Organising the 1st edition at BG NMU Shumen ???

European Security and Defence College

2026

Location: **BG NMU Shumen**

MODULES (SELECTED WEEKS)

Feb	Mar	Apr	May	Jun
Common Security & Defence Policy	Applied Informatics Applied Automation	Programming Dynamic of Flight	Programming Dynamic of Flight Computer Networks Propulsion Systems	Microcontrollers CAD & Numerial Analysis Integrated Weapon Systems

CREDITS

Total: 34 ECTS

- Basic Engineering (6 ECTS)
- Military Science (6 ECTS)
- Electronic Engineering & Computer Science (12 ECTS)
- Mechanical & Aerospace Engineering (12 ECTS)
- Supplementary (4 ECTS)

3.4. BIP Optoelectronic Systems for Defence and Security (draft)

Learning outcomes

- Demonstrate knowledge of the principles, architecture, and functions of optoelectronic systems for aiming and observation in infantry, artillery, and aviation weapon systems.
- Analyse and evaluate the performance of modern observation technologies (night vision, thermal etc) and laser-based systems used in defence applications.
- Apply practical skills in operating and assessing optoelectronic aiming and observation systems under simulated battlefield conditions.
- Integrate optoelectronic technologies into defence scenarios, considering operational effectiveness and safety constraints.