

Country <b>Poland</b>	Institution <b>Military University of Technology</b>	Common Module <b>Advanced Technologies in Borders Surveillance</b>	<b>ECTS 2.0</b>
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Service <b>ALL</b>	<p style="text-align: center;"><b>Minimum Qualification for Lecturers</b></p> <ul style="list-style-type: none"> <li>• <b>Officers or civilian Lecturers:</b> <ul style="list-style-type: none"> <li>○ English: Common European Framework of Reference for Languages (CEFR) Level B2 or min. NATO STANAG 6001 Level 3.</li> <li>○ Thorough knowledge of particular technologies of surveillance.</li> <li>○ Adequate knowledge of new trends in research and study on new technologies designed to protect borders.</li> </ul> </li> </ul>
Language <b>English</b>	

<p><b>Prerequisites for international participants:</b></p> <ul style="list-style-type: none"> <li>• English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2.</li> <li>• At least 1 year of national (military) higher education.</li> <li>• Basic knowledge on national security.</li> </ul>	<p style="text-align: center;"><b>Goal of the Module</b></p> <ul style="list-style-type: none"> <li>• Discover and understand basic principles of functioning, structure and trouble spots of the borders protection systems.</li> <li>• Be aware of specification and classification of borders security systems, including advanced technologies used in these systems.</li> <li>• Introduce to defence surveillance systems and technologies.</li> <li>• Deepen knowledge of the practical application of particular technologies in surveillance system and of the decision making process on selection of appropriate technology to assigned task within border surveillance systems.</li> <li>• Learn about theoretical aspects of surveillance technologies, how to use possibilities of advanced surveillance technologies within the border protection system and about future development and trends in surveillance technologies.</li> </ul>
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<b>Learning outcomes</b>	Know-ledge	<ul style="list-style-type: none"> <li>• Knows the crucial systems to be used within the border protection systems.</li> <li>• Knows the basic direction of advanced technologies of the border protection system development.</li> <li>• Knows the basics of the practical skills how to use selected advanced technologies within the border protection process.</li> <li>• Knows basic principles of use the surveillance advanced technologies in the border protection process.</li> <li>• Understands the clue of surveillance advanced technologies within the border protection system.</li> <li>• Demonstrate the necessary terminology allowing him/her to express opinion, arguments and feedbacks on technologies to be used within borders surveillance systems.</li> </ul>
	Skills	<ul style="list-style-type: none"> <li>• Is able to maintain, safety operate and manage selected surveillance systems and equipment used for the borders protection purposes.</li> <li>• Is able to consider the main problems related to the surveillance advanced technologies within the border protection system.</li> <li>• Is able to consider the consequences of development and evolution of surveillance advanced technologies within the border protection system.</li> <li>• Is able to consider impacts on the border protection process of specific background of the usage of surveillance advanced technologies.</li> </ul>
	Compe- tences	<ul style="list-style-type: none"> <li>• Is able to argue the necessity of the application of particular surveillance technologies within the border security systems.</li> <li>• Is able to argue the suitability of usage of particular surveillance technologies.</li> <li>• Is able to analyse the trends in development of the surveillance technologies within the border protection systems.</li> </ul>

<b>Evaluation of learning outcomes</b>
<ul style="list-style-type: none"> <li>• <b>Observation:</b> Throughout the Module students will meet with the surveillance advanced technologies methods of use and they will discuss the given topics in the plenary and present teamwork results. During these work students will be evaluated to verify their competences.</li> <li>• <b>Project:</b> A group project will focus on the basic description of a selected surveillance technology. Students will have to select the specific set and describe the general characterization of it, as well as possibilities of use within the border protection system. Students will point out main problems related to selected technology. Students can use basic methods of scientific work for realize the task.</li> <li>• <b>Test:</b> Written examination at the end of the module.</li> </ul>

<b>Module Details</b>		
Main Topic	Recommended WH	Details
Application of Constructive and Virtual Simulation Techniques Supporting Border Security Tactics	2	<ul style="list-style-type: none"> <li>• Relations between advanced technologies and surveillance border system.</li> <li>• Development of surveillance border system.</li> <li>• Defence surveillance technologies within the security border system.</li> </ul>
Geospatial Intelligence (GEOINT), Geographic Information System (GIS)	2	<ul style="list-style-type: none"> <li>• Geospatial Intelligence (GEOINT): theory and practice.</li> <li>• Geographic Information System (GIS) as a part of surveillance border system.</li> </ul>
Imagery Intelligence (IMINT)	2	<ul style="list-style-type: none"> <li>• IMINT technologies in a border protecting system.</li> <li>• IMINT: theory and practice.</li> </ul>
Detection of unauthorized emissions in restricted areas	2	<ul style="list-style-type: none"> <li>• Identification of person using different biometric data as voice, face and others including indirect modes.</li> </ul>
Person identification using multi-biometric system. Biometric support for border check	4	<ul style="list-style-type: none"> <li>• Identification of person using different biometric data as voice, face and others including indirect modes.</li> </ul>
Monitoring and recognition of chemical and radiation hazards by border guards and other border security services	2	<ul style="list-style-type: none"> <li>• Monitoring and recognition of chemical and radiation hazards within the border protection system.</li> <li>• Advanced technologies in detecting chemical and radiation hazards in border security services tasks.</li> </ul>
Infrared and night vision technologies	4	<ul style="list-style-type: none"> <li>• Advanced optical detection technologies in border protection system.</li> <li>• Infrared technologies: practice and theory.</li> <li>• Night vision technologies: modern and future issues.</li> </ul>
<b>Total</b>	<b>18</b>	
<b>Additional hours (WH) to increase the learning outcomes</b>		
<b>Self-Studies</b>	32	<ul style="list-style-type: none"> <li>• Separate hours for in-depth-studies on an as-required basis.</li> <li>• Those hours comprise work of students in laboratories and exercises to improve skills and consolidate knowledge.</li> </ul>
<b>Total WH</b>	<b>50</b>	<b>Remarks:</b> <ul style="list-style-type: none"> <li>• The Module encourages the active participation of students.</li> <li>• 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.</li> </ul>

## List of Abbreviations:

- B1, B2 ..... Common Reference Levels
- CEFR ..... Common European Framework of Reference for Languages
- Col ..... Colonel
- Doc. .... Document
- e. g. .... exempli gratia (for example)
- ECTS ..... European Credit Transfer and Accumulation System
- ESDC ..... European Security and Defence College
- IG ..... Implementation Group
- GIS ..... Geographic Information System
- GEOINT ..... Geospatial Intelligence
- IMINT ..... Imagery Intelligence
- Lt Col ..... Lieutenant Colonel
- MUT ..... Military University of Technology
- NATO ..... North Atlantic Treaty Organisation
- PhD ..... Doctor / Doctor of Philosophy
- PL ..... Poland
- STANAG ..... Standardization Agreement
- WH ..... Working Hour / Working Hours