Common Module
Electronic Warfare
Module Description

Implementation Group
Doc.: IG/
Date : 23-4-2015
Origin: SP

Country	Institution	Module	ECTS
HU	**National University of Public Service**	**Electronic Warfare**	**2.0**

	Minimum Qualification for Lecturers
Service **ALL**	• Fully-qualified Electronic Warfare Officer. • Profound knowledge of EW and/or national/international experience in the field of EW.
Language **English**	• Teaching Experience in the field of EW. • English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG Level 3.

Prerequisites for international participants:	**Goal of the Module**
• English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2. • Minimum of two years national (military) higher education. • Basic technical knowledge. • Basic knowledge of military operations.	• Promote an understanding of the Electromagnetic Environment as operational environment. • Enhance the knowledge about threat exposure by using EMS related technology. • Learn about EW actions and measures in order to ensure effective own use of the EME with own systems and force and platform protection. • Consider EW with the MDMP at an echelon according to Cadets' pre-education.

Learning outcomes	Know-ledge	• Basic knowledge of EW as enabler and pillar within Command and Control Warfare (C2W) and Information Operations (InfoOps) • Basic knowledge about adversaries capabilities in using the EME with EMS-related technology in all military services and/or branches • Understand the EME as an operational environment • Understand the Joint Electronic Warfare Operational EW Management structure in national and international organisations.
	Skills	• Identify the friendly operational use, the adversaries make use and the non-combat use of the EME. • Describe the relationship and overlapping activities between EW, Signals Intelligence (SIGINT) and Computer Network Operations (CNO) in military operations at an echelon according to Cadets' pre-education and explain the differences.
	Compe-tences	• Ability to evaluate the threats and the effects to his/her service in order to ensure own force protection and the effective own use of the EME. • Consider EW within the MDMP at an echelon according to Cadets' pre-education adapted to the Cadets' service to find a suitable tactical solution to complete the mission.

Verification of learning outcomes
• **Observation**: Throughout the Module students are to discuss given topics within syndicates and in the plenary. During these work students are evaluated to verify their performance.   • **Evaluation** of group presentations of given topics.   • **Test**: Written exam (multiple choice) at the end of the Module.

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Module Details

Main Topic	Recommen-ded WH	Details
E-learning (Electro-magnetic Environ-ment)	2.5	• Introduction to the module. • EME as operational environment and as a bridge connecting the other operational environments – Land, Air, See, Space and Information. • Basic knowledge the various military and civil users of the EMS and understand the necessity of unimpeded access to and the use of the EME as key factor for successful military operations. • Understand the basic physical characteristics of the different bands of the EMS and give examples of EMS-dependent military technology, their vulnerabilities and opportunities. • Give examples of the friendly operational use, the adversaries make use and the non-combat make use of the EME.
E-learning (Electronic Warfare Terms and Definitions)	2.5	• Describe and understand the Electronic Warfare Actions: Electronic Surveillance (ES), Electronic Attack (EA), Electronic Defence (ED). • Describe and understand the Electronic Warfare Measures (EWM): Electronic Support Measures (ESM), Electronic Counter Measures (ECM) and Electronic Protective Measures (EPM). • Know about EW coordination and EW support • Describe the relationship and overlapping activities between EW, Signals Intelligence (SIGINT) and Computer network Operations (CNO) in military operations and know the differences. • Basic knowledge of EW as enabler and pillar within Command and Control Warfare (C2W) and Information Operations (InfoOps).
E-learning (Threats)	2	• Know about adversaries capabilities in using the EME with EMS-related technology in military services.
E-learning (EW Actions and Measures)	4	• Describe branch and/or service specific EW Actions and Measures and know how to ensure the own effective use of the EME in military operations. • Know about EW operations and EW actions and measures to provide situational awareness and force protection.
Threats	2.5	• Be able to evaluate the threats and the effects to the Cadets' service in order to ensure own force protection and the effective own use of the EME.
EW Actions and Measures	10 (6 SW included)	• Syndicate work according to the Course Director's plan.
EW Manage-ment	11 (6 SW included)	• Consider EW within the national MDMP at echelons according to Cadets' pre-education adapted to the Cadets' service to find a suitable tactical solution to complete the mission. • Knows about the Joint Electronic Warfare Operational EW Management structure in national and international organisations. • Syndicate work according to the Course Director's plan.
Total	**34.5**	Remark: These 34.5 WH equal **30 Lecture Units** with 45 minutes each and 12 hours of syndicate work
Additional hours to increase the learning outcomes		
	15.5	Self-studies & pre-readings may be counted as self-studies.

Total WH	**50**	The amount of hours for the use of the developed e-learning is up to the module director. He/she may replace the e-learning hours/topics with residential phases. 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.

List of Abbreviations:

B1, B2 .... Common Reference Levels

C2W .... Command and Control Warfare

CEFR .... Common European Framework of Reference for Languages

CNO .... Computer Network Operations

EA .... Electronic Attack

ECM .... Electronic Counter Measures

ECTS .... European Credit Transfer and Accumulation System

ED .... Electronic Defence

EME .... Electromagnetic Environment

EMS .... Electromagnetic Spectrum

EPM .... Electronic Protective Measures

ES .... Electronic Surveillance

ESM .... Electronic Support Measures

EW .... Electronic Warfare

EWM .... Electronic Warfare Measures

HU... Hungary

IG .... Implementation Group

InfoOps .... Information Operations

LU .... Lecture Unit

MDMP .... Military Decision Making Process

NATO .... North Atlantic Treaty Organisation

SIGINT .... Signals Intelligence

SP .... The Strategic Partnership

STANAG .... Standardization Agreement

SW .... Syndicate Work

WH .... Working Hour