

**MINISTRY OF DEFENCE OF UKRAINE
KRUTY HEROES MILITARY INSTITUTE OF TELECOMMUNICATIONS AND
INFORMATION TECHNOLOGY**

**EDUCATIONAL PROGRAMME OF THE COURSE
OF PROFESSIONAL MILITARY EDUCATION**

***COMMAND COURSE (TACTICAL LEVEL)
(MATHEMATICAL, INFORMATION AND SOFTWARE SUPPORT OF
MILITARY INFORMATION SYSTEMS), L-1C***

**for the military
occupational specialty**

*530100, 530200 “Mathematical, Information and
Software Support of Military Information Systems”*

APPROVED

by the Academic Council of the Kruty Heroes
Military Institute of Telecommunications and
Information Technology (minutes No. 20 of
29 August 2024)

Chair of the Academic Council of the Kruty
Heroes Military Institute of
Telecommunications and Information
Technology
Colonel



Hyhenii RADZIVILOV

ENACTED

by Order of the Head of the Kruty Heroes
Military Institute of Telecommunications and
Information Technology dated 2 September
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**Kyiv
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PREFACE

DEVELOPED by the Working Group of the Main Directorate of Communications and Cybersecurity of the General Staff of the Armed Forces of Ukraine.

Based on Order No. 187/нагд of the Chief of the Main Directorate of Communications and Cybersecurity of the General Staff of the Armed Forces of Ukraine – Chief of Communications and Cybersecurity of the Armed Forces of Ukraine, dated 23 August 2024.

Head of the Working Group:

Lieutenant Colonel Serhii SKRYPKA, Senior Officer of the Basic Services Section, Information Systems Directorate, Main Directorate of Communications and Cybersecurity, General Staff of the Armed Forces of Ukraine.

Members of the Working Group:

Colonel **Eduard BOVDA**, Head of the Department of Computer Information Technologies, Faculty of Information Technologies, PhD (Engineering), Associate Professor;

Lieutenant Colonel **Mykola NESTERENKO**, Deputy Head of the Department of Computer Information Technologies, Faculty of Information Technologies, Doctor of Engineering, Associate Professor.

TAKEN INTO ACCOUNT:

1. The Professional Standard for Tactical-Level Officers of the Armed Forces of Ukraine — “Mathematical, Information and Software Support of Military Information Systems” (MOS 530100, 530200).

2. The experience of the preparation and employment of forces, perspectives of development of the Armed Forces of Ukraine, procedures and standards adopted by the armed forces of NATO member states, as well as the experience of the Russian–Ukrainian war.

I. PROFILE OF THE EDUCATIONAL PROGRAM

PROFESSIONAL MILITARY EDUCATION COURSE

1 – General Information	
Full name of the higher military educational institution	Kruty Heroes Military Institute of Telecommunications and Information Technology
Title of the document issued upon completion and the scope of the educational program of the professional military education course	Certificate of completion of the course “ <i>Tactical Level Command Course (Mathematical, Information, and Software Support of Military Information Systems), L-1C (MISS), Military Occupational Specialty (MOS) 530100; 530200.</i> ”
Prerequisites	Completion of a higher education degree of at least “Bachelor” or “Master” level, completion of the Tactical Level Basic Course (L-1A) and the Tactical Level Specialized Course (L-1B).
Language of instruction	Ukrainian.
Validity period of the educational program of the professional military education course	Until the program is updated or replaced by a new educational program.
2 – Purpose of the Educational Program	
The purpose of the professional military education course (<i>Tactical Level Command Course L-1C</i>) is to train officers enlisted in the reserve of candidates for promotion to tactical-level positions within the rank category “Captain” in signal units (subunits) of the Armed Forces of Ukraine.	
3 – Characteristics of the Educational Program	
Field of study	Field of knowledge: <i>12 – Information Technologies</i> Specialty: <i>122 – Computer Science</i> Specialization: <i>Mathematical, Information, and Software Support of Military Information Systems.</i>
Main focus of the educational program	Professional military education aimed at service in typical positions defined by the professional standard of the corresponding level.
Program features	The Tactical Level Command Course (TLP + MDMP – Military Decision-Making Process) focuses on developing leadership and management competencies in accordance with NATO standards (TLP), mastering the procedures of the Military Decision-Making Process (MDMP), and applying distributed multi-platform heterogeneous military information systems to solve specialized analytical tasks using automated information retrieval systems.
4 – Employment and Further Education Opportunities	

Employment opportunities	Typical positions within the “Captain” rank category, as defined by the professional standard for tactical-level officers.
Further education	Continuation of training under the professional military education program “ <i>Tactical Level Command and Staff Course for the Signal and Cybersecurity Branch, L-2 (SCSB)</i> ”.
5 – Teaching and Assessment	
Teaching and learning methods	The main forms of instruction used in the delivery of the educational program components include lectures; seminars; group and practical exercises; tactical (tactical-drill, tactical-special) sessions; and self-study activities, including at field training bases.
Assessment	Assessment of learners’ performance covers the full range of control measures defined by the syllabi of the educational components and is conducted using a 100-point scale, the ECTS scale, and the national grading scale.
6 – Program Competencies	
Military-Professional Competencies (MPC)	<p>MPC-1 Ability to prepare a military subunit (mechanized company, 4th-rank ship, etc.) for combat (operations) in main types of battle and stabilization operations, including procedures used by NATO member states (TLP), and taking into account modern combat experience.</p> <p>MPC-2 Ability to demonstrate leadership qualities and effectively assign and distribute tasks among subordinate officers and NCOs during daily activities, combat training, and planning and conducting combat operations.</p> <p>MPC-3 Ability to efficiently manage company-level (shipboard) operations, comply with legal and regulatory requirements on discipline, order, and safety of military service during combat training, daily activities, and combat operations.</p> <p>MPC-4 Ability to apply commander and staff work methods for organizing command and control of subunits in accordance with NATO standards based on the Military Decision-Making Process (MDMP).</p>
Military-Specialized Competencies (MSC)	<p>MSC-1 Ability to design software and information support for military information systems using modern information technologies.</p> <p>MSC-2 Ability to develop, deploy, operate, and maintain distributed multi-platform heterogeneous military information systems based on hardware and software virtualization, parallel, and distributed applications.</p> <p>MSC-3 Ability to solve specialized tasks related to the analysis of infocommunication services by processing data using automated information retrieval systems, including special-purpose ones, during decision-making by military command authorities.</p>
7 – Program Learning Outcomes	
Professional training	<p>PLO-1 Apply knowledge and skills of procedures used in NATO member states (TLP), modern combat experience, and combat support types when preparing a military subunit for operations and stabilization actions.</p> <p>PLO-2 Demonstrate confidence, determination, timeliness, and the ability to analyze moral and professional qualities of subordinates and combat capabilities of subordinate subunits during daily activities, training, and combat operations.</p> <p>PLO-3 Know the requirements of legal and regulatory acts governing company-level (shipboard) management, discipline, and safety during combat training and operational activities.</p> <p>PLO-4 Understand the fundamentals of the Military Decision-Making Process for organizing command and control of subunits in accordance with NATO standards.</p> <p>PLO-5 Develop software and information support for information systems using</p>

	<p>modern IT tools.</p> <p>PLO-6 Develop, deploy, operate, and maintain distributed multi-platform heterogeneous military information systems based on modern virtualization technologies and distributed applications.</p> <p>PLO-7 Apply methods and software tools for information research and influence within military infocommunication systems.</p> <p>PLO-8 Solve analytical data-processing tasks using automated information retrieval systems, including special-purpose ones, in the decision-making process of military command authorities.</p>
8 – Resource Support for Program Implementation	
Personnel support	Academic and teaching staff with combat experience and relevant professional background, possessing verified academic and professional competence within their disciplines.
Material and technical resources	The material and technical base meets the requirements for providing higher education services and ensures training quality, including classrooms, computer labs, specialized laboratories, training grounds, firing ranges, tactical fields, gyms, sports facilities, libraries, multimedia equipment, staff offices, barracks, canteens, weapons, and military equipment.
Information and methodological support	<p>The library provides access to professional periodicals, including electronic editions and databases. The official institutional website contains information on educational and publishing activities, structure, licenses, accreditation, academic units, admission rules, and contact details.</p> <p>The Institute develops course syllabi, educational and methodological support materials, self-study and individual-work guidelines, assessment criteria, diagnostic tools, textbooks, manuals, and lecture notes according to the approved reading lists for each discipline.</p>

2. LIST OF EDUCATIONAL PROGRAM COMPONENTS OF THE PROFESSIONAL MILITARY EDUCATION COURSE AND THE ALIGNMENT OF PROGRAM COMPETENCIES WITH LEARNING OUTCOMES

2.1. List of program components

Code (if any)	Component of the educational program (course / module)	ECTS credits	Form of final assessment
MP 01	Combat Employment and Company Battle Management	3	Credit (pass/fail)
MP 02	Military Leadership	3	Credit (pass/fail)
MP 03	Routine (Daily) Activities	2	Credit (pass/fail)
MP 04	Battalion Staff Work on Planning and Conducting Combat Operations (according to MDMP procedures)	2	Credit (pass/fail)
MS 01	Technologies for Developing Software and Information Support of Military Information Systems	5	Credit (pass/fail)
MS 02	Methods and Tools for Information Analysis and Influence on Corporate Network Services	5	Credit (pass/fail)
Total for the program		20	

2.2. Alignment of Program Competencies with Educational Program Components

	MP 01	MP 02	MP 03	MP 04	MS 01	MS 02
MPC-1	+					
MPC-2		+				
MPC-3			+			
MPC-4				+		
MSC-1					+	
MSC-2					+	+
MSC-3						+

2.3. Alignment of Learning Outcomes with Educational Program Components

	MP 01	MP 02	MP 03	MP 04	MS 01	MS 02
LO-MPC-1	+					
LO-MPC-2		+				
LO-MPC-3			+			
LO-MPC-4				+		
LO-MSC-1					+	
LO-MSC-2					+	
LO-MSC-3						+
LO-MSC-4						+

3. DISTRIBUTION OF EDUCATIONAL PROGRAM COMPONENTS

№	Course code	Course title (module)	Final assessment (distribution by semesters)		ECTS credits	Total number of hours	Classroom hours (under supervision of academic staff / instructors)			Assessment activity	Self-study hours	
			Exam	Credit(pass/fail)			Total	Include				
								Lectures	Group / Seminars			Practical / Labs
1	2	3	4	5	6	7	8	9	10	11	12	13
1	MP 01	Combat Employment and Company-level Battle Management		1	3	90	60	8	30	22	2	28
2	MP 02	Military Leadership		1	3	90	44	10	32	2	2	44
3	MP 03	Routine (Daily) Activities		1	2	60	38		28	10	2	20
4	MP 04	Battalion Staff Work on Planning and Conduct of Combat Operations using MDMP		1	2	60	44	4	38	2	2	14
5	MS 01	Technologies for Developing Software and Information Support of Military Information Systems		1	5	150	72	12		60	2	76
6	MS 02	Methods and Tools for Information Research and Influence on Corporate Network Services		1	5	150	86	22	22	42	2	62
		Comprehensive exam	1			6					6	
Total:			1	6	20	606	344	56	150	138	18	244
Total Hours			1	6	20	606	344	56	150	138	18	244
Number of Exams:											1	
Number of Credits:											6	

4. PROGRAMMES OF THE COMPONENTS OF THE EDUCATIONAL PROGRAMME

MP 01. COMBAT EMPLOYMENT AND COMPANY-LEVEL BATTLE MANAGEMENT

General aim of the course component:

The aim of the course component *Combat Employment and Company-Level Battle Management* is to provide learners with knowledge of the fundamental principles of modern combined-arms combat, duties of a company commander, fundamentals of conducting combat by a mechanized company of the Land Forces of the Armed Forces of Ukraine, tactics of company actions in different types of combat, fundamentals of command and control of subunits in battle, peculiarities of the employment of Land Forces subunits, and key trends in the development of military art. The component is designed to develop learners' skills in commanding company-level actions in various types of combat, assessing and forecasting tactical situations, planning main types of combat in accordance with Troop Leading Procedures (TLP), making timely decisions, and assigning tasks to subordinates considering the operational situation. Learners will also develop professional competence in performing their duties based on tactical thinking, properly plotting tactical situations, and preparing key operational documents in accordance with NATO standards. They should be able to apply provisions of doctrinal documents related to command and control during the preparation and conduct of battle, properly organize security and defense of communication nodes at command posts of formations and units, and, in the role of a company commander, organize and perform duties at checkpoints and observation posts while monitoring the enemy and signals from senior commanders.

Learning outcomes

Knowledge of:

Planning, organization, and conduct of main types of combat (combat operations).

Making optimal decisions based on received information and clearly defining combat tasks for subordinate and attached subunits (fire assets).

Orientation in complex combat environments.

Organization of subunit command and control in accordance with NATO standards and Euro-Atlantic procedures, including staff operations following the TLP structure.

Organization of combat, technical, and logistics (rear) support in different types of combat.

Skills to:

Apply acquired knowledge and understanding of NATO-standard battle planning procedures (TLP) during preparation, conduct, and support of combat by a combined-arms subunit (tactical group) to make sound decisions in combat conditions, solve non-standard tasks, maintain constant combat readiness, issue orders (directives), and bear responsibility for their execution.

Organizational and methodological guidelines

Learners are required to systematically reinforce acquired knowledge and skills through practical, group, and self-study activities. Material designated for self-study must be completed within the allocated time and is subject to both formative and final assessment together with the material studied under the supervision of the academic staff.

During all forms of instruction, active learning methods are used, including individual, group, and frontal assessment techniques. Ongoing assessment is conducted through oral questioning or written express tests during classes, including electronic quizzes of various forms at the discretion of the academic staff member in charge of the lesson.

Material and Technical Support

For the delivery of this course component, the following are used:

computers, multimedia equipment, interactive boards, operational maps, Delta and Kropyva software, officer's rulers, liners, and collections of standardized operational forms.

Information and Methodological Support

1. Combat Manual of Mechanized and Tank Troops of the Land Forces of the Armed Forces of Ukraine. Part 2 (Company, Battalion) Kyiv: Ground Forces Command of the Armed Forces of Ukraine, 2016.
Interim Combat Manual "Land Forces of the Armed Forces of Ukraine". Part 1 (Brigade) Kyiv: Training Command of the Ground Forces of the Armed Forces of Ukraine; National Defence University of Ukraine named after Ivan Chernyakhovskiy, 2021.
2. Collection of Standards for Combat Training of the Land Forces of the Armed Forces of Ukraine. Kyiv: Ministry of Defence of Ukraine, 2018.
3. Album of Unit Action Schemes (Squad, Platoon, Company, Battalion). Kyiv: Kruty Heroes Military Institute of Telecommunications and Information Technology, 2022.
4. Rules for the Development and Formatting of Combat Graphic Documents. Kyiv: Kruty Heroes Military Institute of Telecommunications and Information Technology, 2022.
5. Pavlenko O. A., Tsurikov A. I., Yakubov V. O. Organization of Combat of Mechanized (Tank) Units: Training Manual. Kyiv: Kruty Heroes Military Institute of Telecommunications and Information Technology, 2018.
6. Combat Manual of Mechanized Troops (Squad): Draft. Lviv: National Academy of Land Forces, 2020.

Titles of Topics and Distribution of Training Hours by Types of Classes

№	Types of Classes / Assessment Activities	Total Hours	Include		Title of Topic and Study Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Fundamentals of Combat Employment of a Mechanized Company in Defensive Operations. Fundamentals of Comprehensive Support of Combat.					
1	Practical class	4	4		<p>Lesson 1. General requirements for preparing tactical/operational graphic documents. 1.Key provisions of the Commander-in-Chief of the Armed Forces of Ukraine’s Order No. 140 dated 11 September 2020 “On the approval of the Temporary procedure for preparing operational (combat) documents.” 2.Forms and contents of combat documents — WARNO, FRAGO, OPORD (in accordance with the TLP structure). 3.Preparation of the working map as a combat graphic document.</p>
2	Practical class	4	4		<p>Lesson 2. Methodology for calculating the combat capabilities of a mechanized company in defensive operations. 1.Methodology for calculating the unit’s capabilities to engage armored targets and other fire systems. 2.Methodology for calculating the unit’s capabilities to engage the enemy with small-arms fire.</p>
3	Lecture	4	2	2	<p>Lesson 3. Preparation and conduct of defensive combat by a mechanized company. 1.Fundamentals of defensive combat. Defensive organization of a mechanized company. 2.Procedures for preparing a mechanized company with reinforcing assets for defensive combat. 3.Command and control of the company during defensive combat.</p>
					<p>Self-study Topic: Preparation and actions of a mechanized company in defensive combat. 1.Study of the general situation (Tactical Task No. 5). 2.Study of the specific situation (Tactical Task No. 5).</p>

4	Lecture	2	2		Lesson 4. Components of comprehensive support. Combat support. 1. Components of comprehensive support. 2. Organization of reconnaissance and security. 3. Engineer support and tactical camouflage. 4. Organization of CBRN protection.
5	Group class	4	4		Lesson 5. Engineer support of the company strongpoint. 1. Fortification structures constructed within the company strongpoint. 2. Engineer obstacles emplaced in front of the company strongpoint.
7	Group class	8	8		Lesson 7. Company commander's work in preparing the defensive battle (according to TLP) in accordance with Tactical Task No. 5. 1. Receipt of the defensive mission by the company commander. Development of the preliminary combat order (WARNO). 2. Development of the preliminary battle plan. 3. Unit preparation and movement. Conducting reconnaissance. 4. Completion of battle planning. Development and issuance of the company OPORD for defense. 5. Checking the company's readiness for defense.
8	Calculation-and-drawing assignment No. 1	10		10	Plotting the mechanized company commander's decision for defense on the working map
9	Group class	2	2		Lesson 8. Company fire control in defensive combat 1. The company commander's work on organizing fires. 2. Drawing the scheme of the company strongpoint. 3. Company fire control during combat.
10	Practical class	2	2		Lesson 9. Company control during defensive combat (according to the TLP structure) 1. Company control during defensive combat. 2. After-action review (battle debrief).
11	Practical class	6	6		Lesson 10. Collection and processing of information on radiological, chemical and biological situation 1. Assessment of predicted and actual radiological situation and plotting it on the operational map. 2. Assessment of predicted and actual chemical situation and plotting it on the operational map.
Total for the topic		46	34	12	
Topic 2. Fundamentals of Employing a Mechanized Company in Offensive Combat					

12	Lecture	4	2	2	<p>Lesson 1. Preparation and conduct of offensive combat by a mechanized company</p> <p>1. Fundamentals of offensive combat. Engagement of the enemy by fire in the offensive.</p> <p>2. Procedures for preparing a mechanized company with reinforcing means for conducting offensive combat.</p> <p>3. Conduct of offensive combat by a mechanized company.</p> <p>Self-study</p> <p>Topic: Preparation and actions of a mechanized company in offensive combat.</p> <p>1. Study of the overall situation (Tactical Task No. 6).</p> <p>2. Study of the detailed (sector) situation (Tactical Task No. 6).</p>
13	Group class	10	10		<p>Lesson 2. Company commander's work on preparing the offensive (according to the TLP structure) — based on Tactical Task No. 6</p> <p>1. Receipt of the combat task by the company commander for the offensive. Development of the preliminary combat directive (WARNO).</p> <p>2. Development of the preliminary battle plan.</p> <p>3. Company preparation and movement. Conducting reconnaissance (recon).</p> <p>4. Completion of battle planning. Preparation and issue of the OPORD for the offensive.</p> <p>5. Checking the company's readiness for the offensive.</p>
14	Calculation-and-drawing assignment №2	10		10	Calculating and Drawing Assignment No. 2: Plotting the company commander's decision for the offensive on the operational map.
15	Group class	2	2		<p>Lesson 3. Company control during the conduct of offensive combat (according to the TLP structure)</p> <p>1. Company control during the conduct of offensive combat.</p> <p>2. After-action review (battle debrief).</p>
Total for the topic		26	14	12	

Topic 3. Participation of the Mechanized Company in Stabilization Operations					
16	Lecture	2	2		Lesson 1. Employment of the mechanized company during stabilization operations. 1.Tasks the company may be assigned during participation in stabilization operations. 2.Participation of the mechanized company in reinforced security and border protection. 3.Participation of the mechanized company in isolating a crisis area.
17	Group class	2	2		Lesson 2. Participation of the mechanized company in countering enemy sabotage-reconnaissance forces and illegal armed formations. 1.Search for enemy sabotage-reconnaissance groups and illegal armed formations. 2.Guarding and defending critical facilities and communications. Escorting and protecting convoys. 3.Specifics of preparing the company for participation in stabilization operations.
18	Group class	2	2		Lesson 3. Organization and performance of duty at checkpoints (blockposts). 1.Checkpoint/blockpost setup. 2.Disposition of personnel on the checkpoint. 3.Actions of personnel during inspection of vehicles and individuals at the checkpoint. 4.Enemy tactics during attacks on checkpoints.
19	Practical class	10	6	4	Lesson 4. Drawing layouts of a control checkpoint and a blockpost. 1.Drawing the layout of a control checkpoint. 2.Drawing the layout of a blockpost.
Totals for the topic		16	12	4	
Assessment activities		2	2	-	credit (pass/fail)
Total for the educational component		90	62	28	

MP 02. MILITARY LEADERSHIP

General aim of the programme component

The aim of the “Leadership” component is to develop in course participants the competencies required by the professional standard for a tactical-level officer, to teach practical leadership techniques for influencing individual service members and the unit as a whole, and to foster the officer’s professional agency and capabilities necessary for effective performance of functional duties at an initial tactical post while accomplishing assigned tasks.

Learning outcomes — after completing this component the participant will acquire

Knowledge of:

forms and methods for resolving interpersonal conflicts within a military unit;

gender aspects of an officer’s professional activities;

establishing and maintaining communication within the unit, with local authorities and the local population;

principles and practice of working with the mass media;

formation of an effective combat team and maintaining its readiness to perform operational and combat tasks;

identification and development of leadership qualities among personnel.

Skills to:

maintain a favorable moral-psychological climate and prepare personnel psychologically for operations in extreme conditions;

work autonomously and as part of a team performing duties assigned by position during operational employment and routine unit activity (across service branches and other military formations established under Ukrainian law), and demonstrate leadership skills;

possess methodological skills and lifelong self-development / self-education abilities, and study and apply best practices in professional activity.

Organisational and methodological guidance

Systematic consolidation of the knowledge and skills acquired during this component through practical exercises, group classes and self-study is mandatory.

Material assigned for self-study must be processed within the allotted time and is subject to ongoing and final assessment together with the material covered in instructor-led classes.

Active teaching methods are to be used in all forms of instruction (individual, group and frontal methods of knowledge assessment).

Ongoing assessment may take the form of oral questioning or written express checks during classes, including electronic questionnaires in various formats at the discretion of the course instructor.

Resources for all types of classes include: classrooms, computer labs, multimedia equipment, visual aids, stationery, distance-learning platforms, electronic manuals and questionnaires as determined by the course instructor.

Material and Technical Support

To ensure the delivery of the “Military Leadership” component, the department employs computers, multimedia equipment, and interactive whiteboards.

Information and Methodological Support

1. The Constitution of Ukraine: Adopted at the fifth session of the Verkhovna Rada of Ukraine on June 28, 1996 - Kyiv: Press of Ukraine, 1997. 79 p.
2. Psychological Support for the Development of Leadership Qualities in Future Officers: Methodological manual. - K.: Research Center of the General Staff of the Armed Forces of Ukraine, 2014. - 209 p.
3. Bacevich F.S. Fundamentals of Communicative Linguistics. - Kyiv: Akademia, 2009. 376 p.
4. Boyko O.V. Theory and Methodology of Developing Leadership Competence of Armed Forces Officers: Monograph. - Zhytomyr: O.O. Yevenok Publishing House, 2020. 667 p.
- Boyko O.V., Litvinovsky E.Y., Rudenko M.V. Pedagogical Aspects of Managing the Education Process of Servicemen: K.: NAOU, 2005. 148 p.
5. Galagan V.Y., Orlov V.F., Otych O.M. Conflictology: lecture notes. – K.: DETUT, 2008. - 293 p.
6. Hrytsevych T.L., Kapinus O.S., Matsevko T.M., Tkachuk P.P. Socio-Psychological Technologies of Managing Military Teams: Lviv: NAA, 2018. 256 p.
7. Doctrine of Military Leadership in the Armed Forces of Ukraine: Main Personnel Department of the General Staff of the Armed Forces of Ukraine, OP 1-296, January 2024.
8. Experience of Employing the Armed Forces of Leading Countries: to be taken into account during the acquisition of capabilities by troops (forces) to perform assigned tasks. Parts 1-3. - 2014.
9. Kaidalova L.G., Plyaka L.V., Alyokhina N.V., Shapovalova V.S. Psychology of Communication: a textbook - Kharkiv: NUPh, 2018. 140 p.
10. Agayev N.A., Pishko I.O., Lozinska N.S. of Psychological Knowledge on Mental Disorders for Military Psychologists): Methodological manual. - K.: Research Center of the General Staff of the Armed Forces of Ukraine, 2018. - 310 p.
11. Kokun O.M., Klochkov V.V., Moroz V.M., Pishko I.O., Lozinska N.S. Ensuring the psychological stability of servicemen in combat conditions (methodological manual. - Kyiv-Odesa: Phoenix, 2022. - 128 p.

12. Krymets L.V. Leadership as a Special Form of Power in the Modern Military-Professional Environment: Bulletin of the NGOs. - Kyiv, 2018. №2 (50).

13. Sergeant and Officer Leadership (Psychological and Pedagogical Aspect)]: Lviv: LISV, 2009.

14. Psychological and Pedagogical Aspects of a Military Leader's Activity: Textbook. - K.: Ivan Chernyakhovsky National University, 2014. - 362 p.

15. Temporary Instruction on the Process of Analysing Conducted Training Activities: BII 7(3)-00(01).01. Center for Operational Standards and Training Methodology of the Armed Forces of Ukraine in cooperation with the Main Training Department of the Armed Forces of Ukraine and the International Center for Peacekeeping and Security, December 2019.

List of Topics and Distribution of Academic Hours by Types of classes

№ 3/П	Type of Training Activities and Assessment	Total Hours	Include		Title of the Topic and Learning Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Social Processes in a Group and Their Influence on Leadership Formation					
1.	Lecture	4	2	2	Lesson 1. The Social Group: Features and Types 1. Concept, regularities, and characteristics of groups; typology of groups. 2. Essential features of a small group. 3. Main approaches and directions in the study of small groups. 4. Types and structural characteristics of small groups. Self-study Topic: Fundamentals of the scientific understanding of society 1. The nature of society in the scientific tradition. 2. The problem of typology of societies.

2.	Seminar	4	2	2	Lesson 4. The Small Group in the Context of Social Psychology 1. Typology of social groups. 2. Group identification. 3. Small social groups: concept, features, typology. 4. Small social groups in the military environment: functions and types. 5. Socio-psychological structure of a group.
					Self-study Topic: Society as a social system 1. Essence and main elements of the social structure of society. 2. Social stratification and social mobility.
Total for the topic		8	4	4	
Topic 2. History and current state of psychological research on leadership.					
3.	Lecture	4	2	2	Lesson 1. Leadership Issues in Human History 1. Managerial revolutions and the origins of leadership concepts. 2. Development of leadership theory throughout human history. Self-study Topic: General Principles of Leadership 1. Origins of leadership. 2. Philosophical and social approaches to understanding the phenomenon of leadership.
4.	Group class	4	2	2	Lesson 2. The Genesis of Leadership Psychology 1. Emergence and development of leadership psychology before World War II. 2. Evolution of leadership psychology in the postwar period. 3. Mechanisms of assuming leadership positions: psychological exchange and implicit theory. 4. Correlation between “leadership” and “management.” Self-study Topic: Conceptual and Categorical Apparatus of Leadership 1. Basic concepts and categories of leadership. 2. The leader and the group.

5.	Group class	4	2	2	<p>Lesson 3. Personal Characteristics of a Leader</p> <ol style="list-style-type: none"> 1. Personal qualities of a leader. 2. Techniques for self-actualization and enhancing leadership effectiveness. 3. Motivation for leadership. 4. Formal and informal leadership. <p>Self-study Topic: Laws and Principles of Leadership</p> <ol style="list-style-type: none"> 1. Laws of leadership. 2. Principles of leadership.
6.	Group class	4	2	2	<p>Lesson 4. Public Communication of a Military Leader</p> <ol style="list-style-type: none"> 1. Language and leadership in military activity. 2. Rules of interaction between a military leader and the public or media. 3. Preparing a military leader for a press conference or interview on assigned topics. <p>Self-study Topic: Rhetoric of a Military Leader</p> <ol style="list-style-type: none"> 1. Rhetoric of persuasive speech. 2. Rhetoric of informative speech. 3. Rhetoric of inspirational speech.
7.	Seminar	4	2	2	<p>Lesson 5. The Psychology of Leadership: From Behavioral Models to Cultural-Value Paradigms</p> <ol style="list-style-type: none"> 1. Leadership: concepts and forms. 2. Psychological aspects of the leadership phenomenon. 3. Laws and principles of leadership. 4. Theories of leadership. 5. Approaches to studying leadership. 6. Types and characteristics of leadership. <p>Self-study Topic: Styles, Typology of Leadership, and Its Differences from Management</p> <ol style="list-style-type: none"> 1. Leadership styles. 2. Differences between leadership and management. 3. Analysis of specific cases (examples).
Total for the topic		20	10	10	
Topic 3. Theoretical and Methodological Foundations of Military Leadership					

8.	Lecture	4	2	2	<p>Lesson 1. Professional Activity and Officer Leadership</p> <ol style="list-style-type: none"> Leadership in the professional activity of an officer. Differences between leadership and management (command). Core leadership competencies of an officer. The officer's personality culture as a military leader. <p>Self-study Topic: The Image and Charisma of a Leader</p> <ol style="list-style-type: none"> The image of a leader. The charisma of a leader.
9.	Groupe class	4	2	2	<p>Lesson 2. The Doctrine of Military Leadership Development in the Armed Forces of Ukraine</p> <ol style="list-style-type: none"> Leadership tasks of servicemen. Conditions of leadership among servicemen. Leadership standards for servicemen.
					<p>Self-study Topic: Leadership Concepts</p> <ol style="list-style-type: none"> The traits-based leadership concept. The situational leadership concept. The transactional and transformational leadership concepts. The values-based leadership concept.
10.	Groupe class	4	2	2	<p>Lesson 3. Psychological Aspects of Military Leadership</p> <ol style="list-style-type: none"> Psychological structure of a military leader's personality and its orientation. Temperament and character of a military leader. Psychological traits of a military leader. <p>Self-study Topic: Character Traits of a Military Leader</p> <ol style="list-style-type: none"> Psychological characteristics of a military leader. Self-assessment of authority and leadership level. <p>Solving situational tasks demonstrating psychological traits of a military leader based on real examples from officers' and sergeants' professional activity.</p>

11.	Groupe class	4	2	2	<p>Lesson 4. Models and Features of Situational Leadership in a Military Unit</p> <ol style="list-style-type: none"> 1. Fundamentals of situational leadership. 2. Techniques of situational leadership for an officer (sergeant). 3. Determining a serviceman's readiness level for professional activity in a given situation. <p>Self-study Topic: Values, Ethics, and Behavioral Standards of an Officer as the Foundation of Military Leadership</p> <ol style="list-style-type: none"> 1. Core values (attributes) of a military leader. 2. Key competencies of a military leader. 3. Virtues of a military leader.
12.	Groupe class	4	2	2	<p>Lesson 5. Gender Dimensions of Military Leadership</p> <ol style="list-style-type: none"> 1. The phenomenon of female leadership: theoretical approaches and empirical patterns. 2. Gender aspects of modern democracy (based on the experience of NATO member states). <p>Self-study Topic: Authority and Power of a Military Leader</p> <ol style="list-style-type: none"> 1. Power of a military leader. 2. Basic procedures (algorithm) of direct leadership by an officer (case analysis). 3. Authority of a military leader.
13.	Seminar	4	2	2	<p>Lesson 6. Theory and Practice of Military Leadership</p> <ol style="list-style-type: none"> 1. Psychological characteristics of the military command process. 2. Types and models of officer leadership. 3. Leadership within a military unit. 4. Leadership styles in military units. 5. Psychological aspects of military leadership. 6. Values, ethics, and behavioral standards of an officer as the foundation of military leadership. <p>Self-study Topic: Methods of Personnel Motivation by a Military Leader</p> <ol style="list-style-type: none"> 1. Models and techniques for motivating unit personnel. 2. Alternative motivation methods used by a military leader.
Total for the topic		24	12	12	
Topic 4. Forms and Methods of Resolving Interpersonal Conflicts in a Military Unit					

14.	Lecture	4	2	2	<p>Lesson 1. Conflicts in Military Units and the Need for Their Constructive Resolution</p> <ol style="list-style-type: none"> 1. The impact of conflicts on servicemen and the moral and psychological state of a unit. 2. Causes of conflicts among servicemen. <p>Self-study Topic: Manipulative Techniques and “Toxic” Behavior of Certain Servicemen</p> <ol style="list-style-type: none"> 1. Main forms of manipulative and “toxic” behavior among servicemen. 2. Psychological traits of “toxic” military leaders.
15.	Group class	4	2	2	<p>Lesson 2. Constructive Resolution of Conflicts Among Servicemen</p> <ol style="list-style-type: none"> 1. Forms and criteria of conflict resolution. 2. Conditions and factors of constructive conflict management. <p>Psychological mechanisms of constructive conflict resolution. Self-study Topic: Types of “Toxic” Military Personnel</p> <ol style="list-style-type: none"> 1. Identification of “toxic” behavior among servicemen. 2. Behavioral patterns of “toxic” military leaders.
16.	Group class	4	2	2	<p>Lesson 3. The Military Leader and Conflict Management</p> <ol style="list-style-type: none"> 1. Effectiveness of third-party involvement in conflict resolution. 2. Officer’s role in managing conflicts among subordinates. 3. Role of a military psychologist in conflict resolution. 4. Algorithm of conflict resolution. <p>Self-study Topic: Leadership Interaction Between Officers and NCOs</p> <ol style="list-style-type: none"> 1. Distribution of leadership functions between officers and NCOs. 2. Leadership interaction between officers and NCOs in combat situations.
17.	Group class	4	2	2	<p>Lesson 4. Establishing and Maintaining Communication Within a Military Unit</p> <ol style="list-style-type: none"> 1. Organization of internal communication within units of the Armed Forces of Ukraine. 2. Commander’s influence on the moral and psychological climate of the unit. <p>Self-study Topic: Information and Propaganda Support in the Units of the Armed Forces of Ukraine</p> <ol style="list-style-type: none"> 1. Organization of information and propaganda support in the units of the Armed Forces of Ukraine. 2. The commander as the single authority, leader, and main organizer of internal communication in the unit.

18.	Seminar	4	2	2	<p>Lesson 5. Characteristics of Conflicts in Military Units and Ways of Their Resolution</p> <ol style="list-style-type: none"> 1. Features and types of internal conflicts in military units. 2. Causes and factors of interpersonal and intergroup conflicts in military units. 3. Actions of a military leader to prevent and manage conflicts in a unit. 4. Modeling conflict resolution by a military leader. 5. Conflict management techniques in a military unit. 6. Specifics of internal communication in the Armed Forces of Ukraine during the Russian-Ukrainian war. <p>Self-study Topic: Leadership Time Management Techniques</p> <ol style="list-style-type: none"> 1. Time management using the Eisenhower Matrix. 2. Time multiplication techniques by Rory Vaden.
Total for the topic		20	10	10	
Topic 5. Building an Effective Combat Team and Maintaining Its Readiness for Mission Execution					
19.	Lecture	4	2	2	<p>Lesson 1. The Role of a Military Leader in Team Building and Unit Cohesion</p> <ol style="list-style-type: none"> 1. Stages of forming a Combat-Ready Team from a military unit. 2. Cohesion of personnel into an effective combat team by a military leader. 3. Identifying and developing leadership qualities among unit personnel. <p>Self-study Topic: Building Effective Teams</p> <ol style="list-style-type: none"> 1. Principles of designing effective teams. 2. Definition and typology of teams.
20.	Group class	4	2	2	<p>Lesson 2. Forming a Combat-Ready Team by a Military Leader in Combat Conditions</p> <ol style="list-style-type: none"> 1. Factors influencing unit cohesion in combat situations. 2. Key characteristics of a combat-ready team. 3. Developing Combat-Ready Teams by a military leader. <p>Self-study Topic: Developing a Combat-Ready Team by a Military Leader</p> <ol style="list-style-type: none"> 1. Actions of a military leader during the development stage of a combat team. 2. Adherence to principles of personnel preparation under combat conditions. 3. Indicators of combat team development.

21.	Seminar	4	2	2	<p>Lesson 3. Maintaining a Team’s Readiness for Mission Execution by a Military Leader</p> <ol style="list-style-type: none"> Principles of designing effective teams. Specifics of interaction within a combat-ready team. Leadership and management of a combat-ready team. Practical aspects of maintaining unit cohesion through military leadership. Positive role models of soldier behavior in combat to support team cohesion. Practices of personnel development by a military leader. <p>Self-study Topic: Models of Building a Positive Climate in a Combat-Ready Team</p> <ol style="list-style-type: none"> Building a positive climate and growth mindset among warriors (S. McChrystal, W. McRaven, J. Willink). Intent-based leadership (method by Capt. David Marquet). Leadership behavior models for maintaining team cohesion in combat.
22.	Practical class	4	2	2	<p>Lesson 4. Press Conference and Interview of a Military Leader</p> <ol style="list-style-type: none"> Presentation of a military leader’s narrative on a defined topic. Role-play: Press conference of a military leader on current issues of professional military activity. <p>Self-study Topic: Information and Communication Support of the Armed Forces of Ukraine</p> <ol style="list-style-type: none"> Information activities of public relations (press) offices of the Armed Forces of Ukraine. Types of information materials and training of Armed Forces representatives for communication with the media.
					<p>Lesson 4. Press Conference and Interview of a Military Leader</p> <ol style="list-style-type: none"> Presentation of a military leader’s narrative on a defined topic. Role-play: Press conference of a military leader on current issues of professional military activity. <p>Self-study Topic: Information and Communication Support of the Armed Forces of Ukraine</p> <ol style="list-style-type: none"> Information activities of public relations (press) offices of the Armed Forces of Ukraine. Types of information materials and training of Armed Forces representatives for communication with the media.
Total for the topic		16	8	8	
Assessment activities		2	2	-	credit (pass/fail)
Total for the educational component		90	46	44	

MP 03. DAILY ACTIVITIES

General objective of the educational component:

The purpose of studying the educational component Daily Activities is to provide learners with knowledge of the procedures for preparing and maintaining administrative documents, organizing personnel accounting within a unit, managing company logistics, understanding the main tasks of the unit's internal service, levels of combat readiness, methodology for developing and maintaining combat readiness planning documents, procedures for conducting inspections and assessing combat and mobilization readiness of a unit, as well as the basics of organizing and conducting combat training.

The course also aims to develop practical skills in preparing and maintaining administrative documentation, organizing personnel records, managing company logistics, ensuring internal service within a unit, maintaining a constant state of combat readiness, keeping combat readiness planning documentation, and organizing both individual and collective training activities.

Learning outcomes – Upon completion of this educational component, learners will acquire the following

Knowledge of:

procedures for preparing and maintaining administrative documentation;
organization of personnel accounting within a unit;
organization and management of company logistics;
main tasks of internal service within a unit and levels of combat readiness;
methodology for developing and maintaining unit combat readiness planning documents;
organization of inspections and evaluation of combat and mobilization readiness of the unit;
fundamentals of organizing and conducting combat training;
procedures for applying training standards during combat training sessions;
fundamentals and methodology of evaluating unit combat training.

Skills to:

prepare and maintain administrative documentation within a unit;
organize personnel accounting;
organize and maintain company logistics records;
organize and implement internal service activities within a unit;
carry out measures to maintain constant combat readiness;

maintain combat readiness planning documentation;
organize and conduct individual and collective training activities.

Organizational and methodological guidelines

Systematic reinforcement of the knowledge and skills acquired during the study of this educational component is mandatory through practical, group, and self-study activities.

The material intended for self-study must be mastered within the allocated time and is subject to both current and final assessment along with the content studied during classes under the guidance of an academic instructor.

Active learning methods, as well as individual, group, and frontal knowledge assessment methods, are used during all forms of instruction.

Ongoing assessment is conducted in oral or written form, including electronic quizzes, at the discretion of the instructor.

Material and technical support

Computers, multimedia equipment, interactive whiteboards, and collections of standardized (formalized) documents are used to support the implementation of this educational component.

Information and Methodological Support

1. Combat Training Manual of the Armed Forces of Ukraine. Main Directorate for Doctrines and Training, General Staff of the Armed Forces of Ukraine. Kyiv, 2020. 64 p.
2. Combat Training Manual for the Signal (Communications) Troops of the Armed Forces of Ukraine. Command of the Signal and Cybersecurity Troops of the Armed Forces of Ukraine in cooperation with the Kruty Heroes Military Institute of Telecommunications and Information Technology. Kyiv, August 2020. 165 p.
3. Collection of Unified Standards and Training Tasks for the Signal Troops of the Armed Forces of Ukraine. Approved by Order of the Commander of the Signal and Cybersecurity Troops of the Armed Forces of Ukraine No. 479/nagp (restricted), 01 December 2021.)
4. Management of the Daily Activities of Units: Textbook / M.A. Holova, S.I. Zaderiyenko, O.V. Ivashchenko et al.; ed. M.A. Holova. Lviv: National Academy of the Ground Forces, 2018. 227 p.
5. Methodical Recommendations on Specifics of Organizing Certain Issues of Daily Activities and Troop Service in Military Units of the Land Forces of the Armed Forces of Ukraine. Kyiv: Land Forces Command of the Armed Forces of Ukraine, 2016. 268 p.
6. Instruction on the Organization of Preparation and Conduct of Inspections in the Armed Forces of Ukraine. Approved by Order of the General Staff of the Armed Forces of Ukraine No. 1, 02 January 2020.

7. Methodical Manual on Key Issues of Organizing the Daily Activities of Troops (Forces) / M.M. Tsytsyurskyi, S.O. Kyrychenko, O.Yu. Urazov. Kyiv: Ministry of Defence of Ukraine; General Staff of the Armed Forces of Ukraine, 2007. 647 p.

List of Topics and Distribution of Academic Hours by Types of classes

№	Type of Training Activities and Assessment	Total Hours	Include		Title of the Topic and Learning Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Management of Units' Daily Activities					
1	Group class	4	2	2	Lesson 1. Procedure for preparing administrative (management) documents. 1. Fundamentals of the provisions of governing documents on the organization of documentation for management activities. 2. Preparation and formalization of service (official) documents. 3. Use of official documents within the unit.
2	Group class	4	2	2	Lesson 2. Organization of personnel accounting in the unit. 1. Key provisions of governing documents on personnel accounting in the unit. 2. Procedure for personnel accounting in the unit (company, platoon).
3	Group class	4	2	2	Lesson 3. Organization and management of the military (unit) household. 1. Fundamentals of organizing and maintaining the military household. 2. Tasks and organization of company-level economy (unit household). 3. Organization of accounting for military property in the unit. 4. Procedure for writing-off (disposal of) military property.
4	Group class	4	2	2	Lesson 4. Content and main tasks of troop service in a formation / unit. 1. Content and tasks of troop service. 2. Planning troop service in a formation / unit. 3. Summarizing and assessing the state of troop service in a military unit (subunit).
5	Group class	4	2	2	Lesson 5. Levels (degrees) of combat readiness of military units (subunits). 1. Degrees of combat and mobilization readiness of military units (subunits). 2. Degrees of combat readiness for units (subunits) performing combat (special) tasks.

6	Group class	4	2	2	<p>Lesson 6. Methodology for developing and maintaining planning documents of combat readiness in a unit.</p> <ol style="list-style-type: none"> 1. Content and structure of documents of the responsible officers in matters of combat readiness. 2. Procedures for updating and maintaining documents. Combat calculation of the unit and its contents.
7	Group class	4	2	2	<p>Lesson 7. Organization of inspections and assessment of combat and mobilization readiness of a military unit (subunit).</p> <ol style="list-style-type: none"> 1. General provisions on the organization of inspections and assessments. 2. Procedure for assessing combat and mobilization readiness of a military unit (subunit)
8	Group class	2	2	-	<p>Lesson 8. Organization and conduct of restoration of combat readiness of military units (subunits).</p> <ol style="list-style-type: none"> 1. Goals, tasks and stages of restoration of combat readiness. 2. Peculiarities of restoring combat readiness of units (subunits) in a special-period environment.
9	Group class	4	2	2	<p>Lesson 9. Fundamentals of organization and methodology of units' (subunits') combat training</p> <ol style="list-style-type: none"> 1. Main provisions of governing documents on the organization of combat training. Requirements for the combat training system of a unit (subunit). 2. Principles, forms and methods of military training.
10	Group class	4	2	2	<p>Lesson 10. Organization of training of servicemen in the unit</p> <ol style="list-style-type: none"> 1. Organization of individual training in the unit. 2. Organization of collective training in the unit. 3. Main requirements for drafting the weekly training schedule.
11	Group class	2	2	-	<p>Lesson 11. Training material-technical base (TMTB) for combat training</p> <ol style="list-style-type: none"> 1. General provisions. 2. Training TMTB facilities, their purpose and equipment. 3. Field TMTB facilities, their purpose and equipment.
12	Group class	4	4	-	<p>Lesson 12. Application of training standards in the organization of combat training sessions</p> <ol style="list-style-type: none"> 1. General provisions on organizing sessions according to training standards. 2. Algorithm for preparation and conducting sessions according to standards. 3. Methodology and organization of conducting live-fire training sessions.
13	Group class	4	2	2	<p>Lesson 13. Fundamentals of organization and methodology for assessing combat training of units (subunits)</p> <ol style="list-style-type: none"> 1. Main requirements of governing documents regarding inspections and assessments of servicemen and units. 2. Procedure for assessing individual and collective training of servicemen and units.

14	Practical class	10	10	-	Coursework: "Organization of conducting a tactical-drill (tactical-special) session with a communications and cyber-security unit"
Total for the topic		58	38	20	
Assessment activities		2	2	-	credit (pass/fail)
Total for the educational component		60	40	20	

MP 04. BATTALION STAFF WORK ON PLANNING AND CONDUCTING COMBAT OPERATIONS
ACCORDING TO MDMP PROCEDURES

General aim of the programme component

The aim of teaching the component “Battalion staff work on planning and conducting combat operations according to MDMP procedures” is to provide theoretical foundations of command and control systems for military purposes, in particular issues related to the methodology for studying control systems and processes, organization of planning and operational control processes, assessment of quality and optimization of control processes, application of new information technologies for force and communications management; fundamentals of preparing and conducting operations in accordance with NATO member states’ standards; basics of the military decision-making process (MDMP); and fundamentals of organizing battalion (divisional and equivalent) staff work in accordance with NATO standards.

Learning outcomes - After studying this programme component the student will acquire

Knowledge of:

theoretical foundations of command and control of troops, command bodies and control posts;
fundamentals of preparing and conducting operations in accordance with NATO member states’ standards;
fundamentals of the military decision-making process (MDMP);
methods of work for commanders and staffs to organize command and control of forces in accordance with NATO member states’ standards;
procedures for developing documents related to the organization of troop (unit/subunit) control during combat operations (military operations);
methods of work for commanders and staffs regarding the organization of combat employment of communications units.

Skills to:

apply the general provisions of the military decision-making process (MDMP) during preparation and while conducting military operations (combat actions);
apply acquired knowledge of the fundamentals of preparing and conducting operations in accordance with NATO member states’ standards;
organize interaction and allocate tasks and functions among the staff’s structural subdivisions;
based on governing documents, develop and prepare operational (combat) documents that are produced and circulated within staffs for organizing control of units during preparation and conduct of military operations (combat actions);

using decisions on combat employment of the communications unit, issue tasks to subordinates for its execution; on the basis of governing documents, using a map, clarify the mission, assess the situation and make a decision on the combat employment of communications units;

perform duties assigned in accordance with MDMP procedures.

Organizational and methodological guidance

It is mandatory to systematically consolidate the knowledge and skills acquired while studying this programme component through practical and group classes and through self-study.

Study material assigned for self-study must be worked through in the allocated time and is subject to both ongoing and final assessment together with material covered during instructor-led classes.

All teaching forms employ active learning methods and individual, group and frontal knowledge-control methods. Ongoing control is conducted in the form of oral questioning or written express-checks during classes, including electronic questionnaires in various formats as decided by the teaching staff (class instructor).

For all types of classes the following means are used: classrooms, computer labs, multimedia equipment, visual aids, writing supplies, distance learning platforms, electronic manuals and questionnaires as decided by the teaching staff (class instructor).

Material and technical support

To support delivery of this programme component, the department uses computers, multimedia equipment, interactive whiteboards, topographic maps, overlays, tablets for simulation of unit control during combat operations, and magnetic markers denoting units (in accordance with NATO standards).

Information and Methodological Support

1. Collection of Unified Standards and Training Tasks for the Signals Forces of the Armed Forces of Ukraine.
2. Guidance on the Organization of Operational-Technical Management (OTM) at Communication Nodes of the Armed Forces of Ukraine.
3. Organization of Military Communications. Training Manual.
4. NATO Standard Symbols (for Military Signal Personnel). Instructional Visual Manual.
5. Doctrine “Communications and Information Systems”.
6. Temporary Instruction on the Organization of Communications and Information Systems of the Armed Forces of Ukraine.
7. US Experience Implementation Centre Training Manual — MDMP.
8. Methodical Recommendations “Staff Officer’s Work at the Tactical Level”. VP7-(01,02,04)11.01.
9. Information Bulletin “Study of Combat Experience in the Employment of the Signals and Cybersecurity Forces of the Armed

Forces of Ukraine in the Russo-Ukrainian War”.

10. Training Standard “Actions of the Crew of the Command and Staff Vehicle”.

11. AComP-01 (Edition 3) COMMUNICATIONS NATO GLOSSARY, MOD)» STANAG 5626. (VST 01.112.006 – 2021(01) “Military Communications and Information Systems. NATO Communications Glossary (AComP-01, Edition 3)”. STANAG 5626.

12. AAP-31 Edition 3, IDT). STANAG 5064. “Military Communications and Information Systems. NATO Glossary for Communications and Information Systems (AAP-31, Edition 3, IDT)”. STANAG 5064. NATO Reference.

List of Topics and Distribution of Academic Hours by Types of classes

№	Type of Training Activities and Assessment	Total Hours	Include		Title of the Topic and Learning Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Battalion (Brigade) Staff Work on Planning and Conducting Combat Operations Using the MDMP					
1	Lecture	3	2	1	Lesson 1. Structure and functions of the staff. 1. Structure and functions of the staff. 2. Distribution of duties among staff officers.
2	Lecture	2	2	-	Lesson 2. Introduction to MDMP. 1. General principles of the Military Decision Making Process. 2. Stages of the Military Decision Making Process.

3	Group class	6	4	2	<p>Lesson 3. Decision making process — Stage 1: Receipt of the Mission.</p> <ol style="list-style-type: none"> 1. Organization of staff work. 2. Preparation of informational-reference materials and other means necessary for planning the operation (actions). 3. Clarification of reference data and preparation of proposals. 4. Conducting preliminary calculations. 5. Issuing commander's instructions for preparation for combat (operations), determination of measures to be taken immediately to prepare for combat (operations). 6. Working out the preliminary order.
4	Group class	5	4	1	<p>Lesson 4. Decision making process — Stage 2: Mission analysis.</p> <ol style="list-style-type: none"> 1. Task analysis. 2. Understanding the received combat mission. 3. Assessment of the enemy and the area/sector of future operations. 4. Determination of specified, implied and essential tasks. 5. Assessment of own forces and adjacent units.
5	Group class	5	4	1	<p>Lesson 5. Decision making process — Stage 2: Mission analysis.</p> <ol style="list-style-type: none"> 1. Identification of constraints. 2. Identification of facts and assumptions. 3. Risk management. 4. Determination of the list of critical information and requirements for information protection. 5. Development of a preliminary plan for the collection, refinement and verification of specific intelligence data.
6	Group class	5	4	1	<p>Lesson 6. Decision making process — Stage 2: Mission analysis (continued).</p> <ol style="list-style-type: none"> 1. Clarification of time parameters for the operation (combat actions). 2. Establishment of information channels to inform government and non-government organizations and the civilian population. 3. Formulation of existing problematic issues. 4. Formulation of the combat mission. 5. Conducting a tactical meeting (briefing) to summarize conclusions from mission analysis and situation assessment, and to formulate planning assumptions.

7	Group class	3	2	1	Lesson 7. Decision making process — Stage 2: Mission analysis. 1. Formulation of the commander's initial intent. 2. Development and issuance of initial planning guidance. 3. Determination of criteria for evaluating COAs (courses/variants of action). 4. Issuance and dissemination of the preliminary order to subordinate forces.
8	Group class	5	4	1	Lesson 8. Military Decision-Making Process — Step 3: Course of Action (COA) Development 1. Development of COAs. 2. Comparative analysis of combat potential. 3. Determination of possible ways to accomplish the mission. 4. Allocation of forces and means by elements of the battle formation. 5. Development of the concept of the operation and formulation of the commander's decision.
9	Group class	5	4	1	Lesson 9. Military Decision-Making Process — Step 3: Course of Action (COA) Development 1. Determination of the command and control structure. 2. Formalization of developed COAs. 3. Conduct of the tactical briefing (COA briefing). Selection or adjustment of COAs for further analysis.
10	Practical class	2	2	-	Lesson 10. Development of Courses of Action 1. Calculation of communications forces and assets by elements of the battle formation. 2. Allocation of communications assets by elements of the battle formation.
11	Group class	5	4	1	Lesson 11. Military Decision-Making Process — Step 4: Course of Action (COA) Analysis 1. Analysis of COAs (wargaming and modeling). 2. Recording the results of COA wargaming. 3. Conducting COA analysis (simulation). 4. Preparation of reference materials (maps, overlays, diagrams, etc.) required for the analysis (wargaming) of COAs.
12	Group class	3	2	1	Lesson 12. Military Decision-Making Process — Step 4: Course of Action (COA) Analysis 1. Compilation of the list of available forces and means. 2. Compilation of assumptions. 3. Preparation of a list of critical actions (events) and decision points (time and place for clarification of decisions).

13	Group class	3	2	1	Lesson 13. Military Decision-Making Process — Step 4: Course of Action (COA) Analysis 1. Selection of the method for conducting COA wargaming. 2. Determination of procedures for recording and visualizing wargaming results. 3. Conducting COA wargaming and evaluation of outcomes. 4. Conduct of a tactical briefing (wargaming results briefing).
14	Group class	3	2	1	Lesson 14. Military Decision-Making Process — Step 5: Course of Action (COA) Comparison 1. Comparison of COAs. 2. Analysis of advantages and disadvantages of developed COAs. 3. Comparative assessment of developed COAs. 4. Conduct of a tactical briefing (briefing on the commander's concept of operations).
15	Group class	3	2	1	Lesson 15. Military Decision-Making Process — Step 6: Course of Action (COA) Approval 1. Approval of the selected Course of Action (COA). 2. Development and refinement of the approved COA.
Total for the topic		58	44	14	
Assessment Activities		2	2	-	Credit (pass/fail)
Total for the Educational Component		60	46	14	

MS 01. TECHNOLOGIES FOR DEVELOPING SOFTWARE AND INFORMATION SUPPORT FOR MILITARY INFORMATION SYSTEMS

General aim of the educational program component

The purpose of studying the educational program component “Technologies for Developing Software and Information Support for Military Information Systems” is to provide learners with knowledge of the fundamental principles, methods, and tools for the development and operation of software complexes of special and general-purpose information-computational systems; to instill skills in using technological environments for automated software development and organizing collective software development projects; and to form and consolidate theoretical knowledge, practical skills, and abilities to effectively apply methods of analysis and design in developing information-computational systems for military headquarters, systems supporting modeling processes, and conducting specialized calculations sufficient for performing duties and tasks defined by the Professional Standard of a Tactical-Level Officer – Mathematical, Information, and Software Support of Military Information Systems, taking into account the experience of combat operations and the ongoing war in Ukraine.

Learning outcomes - As a result of studying this component, the learner will acquire

Knowledge of:

basic principles, methods, and tools for developing and operating software complexes for special and general-purpose information-computational systems;
the architectural structure of modern military information systems;
methods of analysis and design of information-computational systems for military headquarters.

Skills to:

assess and ensure the quality of IT projects, information, and computer systems of various types;
apply international standards for evaluating the quality of software used in information and computer systems;
apply models for assessing the maturity of software development processes;
identify and eliminate problem situations during software operation;
formulate tasks for software modification or re-engineering;
collect, formalize, systematize, and analyze requirements and user needs for a developed (operated or maintained) information or computer system;
develop software and information support for military information systems using modern information technologies.

Organizational and methodological guidelines

Systematic reinforcement of the acquired knowledge and skills during group classes, practical exercises, and self-study is mandatory.

The study materials intended for independent work shall be covered within the allocated time and are subject to current and final assessment together with the material studied during in-class sessions under the supervision of the academic instructor.

All forms of training employ active learning methods, as well as individual, group, and frontal forms of knowledge assessment. Ongoing assessment is conducted in the form of oral questioning or written express-tests during training sessions, including electronic quizzes in various formats as determined by the academic instructor.

For all types of classes, the following resources are used: training classrooms, computer labs, multimedia equipment, visual aids, writing materials, distance-learning platforms, electronic textbooks, and questionnaires as determined by the academic instructor.

Material and technical support

For the delivery of this educational program component, the following are used: computers, multimedia equipment, interactive whiteboards, and software of military information systems such as “Delta”, “Dzvin-AS”, “Kropyva”, “Virazh-Tablet”, and the Ministry of Defence Electronic Document Management System (EDMS) “SEDO”.

Information and Methodological Support

1. Petrenko A.I., Bulakh B.V. Applied Programming as Service Orchestration. – Kyiv: NTUU “KPI”, 2016. – 111 p.: ill.
2. User Guide on Organizing Work in the “Dzvin-AS” Information System. – Kyiv: VITI, 2019. – 108 p.: ill.
3. Shkitskyi V.V., Subach I.Yu., Silko O.V. Fundamentals of Developing Multithreaded Distributed Applications in Java: Textbook. – Kyiv: MITIT, 2016.
4. Software Suite “Kropyva”. Operator’s Manual. UA.LOGK.00002-01 34 01. – Kyiv, 2018. – 82 p.
5. Collective authors: Havalko V.I. (PhD, Associate Prof.) (sec. 1.2, 2.2); Dzhigomon S.K. (sec. 1.6, 2.4); Kolodiazhnyi A.M. (Colonel) (sec. 1.9, 2.7); Krainov V.O. (PhD, Associate Prof.) (sec. 1.4, 2.1); Masliuk L.A. (PhD, Senior Research Fellow) (sec. 1.3, 1.11–1.12, 2.8); Raputa O.V. (Lieutenant Colonel) (sec. 1.5, 2.3); Salkutsan S.M. (PhD in Military Sciences, Associate Prof., Colonel) (introduction, sec. 1.7, 1.10, 1.13); Stuzhuk P.I. (PhD in Military Sciences, Associate Prof.) (sec. 1.1, 2.5); Chornous M.H. (sec. 1.8, 2.6). Automated Command and Control System “Slavutysh”: in 2 vol. Vol. 1: Purpose, Capabilities, Fundamentals of Construction and Application of Main Functional Subsystems: Textbook. – Kyiv: NUOU named after I. Cherniakhovskyi, 2017. – 208 p.)
6. Havalko V.I. Automated Command and Control System “Slavutysh”: in 2 vol. Vol. 2: Textbook. – Kyiv: NUOU named after I. Cherniakhovskyi, 2017. – 208 p.
7. Guidelines for the Use of the Special Software “Virazh-Tablet” – Kyiv: MITIT, 2019. – 65 p.

8. Ivanova T.V., Pidubna L.P. Office Recordkeeping in Public Administration and Local Self-Government: Textbook. – Kyiv, 2007.
9. Korbutiak V.I., Tolchanova Z.O. Office Recordkeeping: Textbook. – Rivne: NUWGP, 2010. – 122 p.
10. Matviienko O., Tsyvin M. Fundamentals of Organizing Electronic Document Management: Textbook. – Kyiv: Center for Educational Literature, 2008. – 112 p.
11. Paleha Yu.I. Organization of Modern Office Recordkeeping: Textbook. — Kyiv: Kondor, 2007. — 194 p.
12. Krutko I.M., Poliakov S.Yu. Military Documentation and Office Recordkeeping: Textbook. – Kharkiv: National Law Academy of Ukraine, 2003. – 38 p.

List of Topics and Distribution of Academic Hours by Types of classes

№	Type of Training Activities and Assessment	Total Hours	Include		Title of the Topic and Learning Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Characteristics of Software and Information Support of Military Information Systems. Architecture of the “Delta” System. “Dzvin-AS” Information System.					
1.	Lecture	6	2	4	Lesson 1. Characteristics of Software and Information Support of Military Information Systems. 1. Subject and content of the discipline. 2. Ways to improve the software and information support of military information systems. 3. The process of developing NATO requirements for information exchange (STANAG 2519 Ed. 1 / APP-15 (A)).
2.	Lecture	4	2	2	Lesson 2. “Delta” Information System. “Dzvin-AS” Information System. 1. General characteristics of the “Delta” information system. Core tasks and functions. 2. Architectural structure of the unified integration platform of the Armed Forces of Ukraine (“Delta” system). 3. General characteristics of the “Dzvin-AS” information system. Core tasks and functions. 4. Architectural structure of the integration platform of the Armed Forces of Ukraine (“Dzvin-AS” system).

3.	Practical class	8	4	4	Lesson 3. Familiarization with the main functions and interface of the “Delta” information system. 1. Performing tasks related to system identification, interface overview, chat communication, object and layer manipulation, and system administration. 2. Task completion and analysis of the obtained results.
4.	Practical class	8	4	4	Lesson 4. Familiarization with the main functions and interface of the “Dzvin-AS” information system. 1. Explorer, operations registry, and work with the electronic map. 2. Creating and viewing reports. Working with documents.
Total for the topic		26	12	14	
Topic 2. General principles of the architectural design of the software-and-hardware complex “Kropyva”					
5.	Lecture	4	2	2	Lesson 1. Introduction to the software-and-hardware complex “Kropyva” 1. Purpose, capabilities and composition of the software-and-hardware complex “Kropyva”. Core tasks implemented by the system. 2. Architectural features of the “Kropyva” software-and-hardware complex.
6.	Practical class	8	4	4	Lesson 2. Introduction to the functionality of “Kropyva Map” 1. Specifics of using the digital map within the “Kropyva” software-and-hardware complex. 2. Algorithm for performing topogeodetic calculations. 3. Characteristics of the map zoning process and coordinate encoding.
7.	Lecture	4	2	2	Lesson 3. Features of working with the operational-tactical situation in the “Kropiva” complex 1. Characteristics of the tactical layer. 2. Features of the order-of-battle layer and the algorithm for preparation prior to calculations. 3. Procedure for creating fire tasks.
8.	Practical class	8	4	4	Lesson 4. Practical work with the operational-tactical situation in the “Kropyva” complex 1. Working with the tactical layer. 2. Working with the order-of-battle layer and preparatory processes for calculations. 3. Creation of fire tasks.
9.	Practical class	8	4	4	Lesson 5. Practical work with service selection functions 1. Selecting a populated place. Map zoning and coordinate encoding. Switching to coordinates. 2. Exchanging location between users. 3. Working with routes (tracks). 4. Determination of line-of-sight (direct visibility).
Total for the topic		32	16	16	
Topic 3. General Principles of the Architectural Design of the “Virazh-Tablet” Software Suite					

10.	Lecture	4	2	2	Lesson 1. General characteristics and main capabilities of the “Virazh-Tablet” software suite 1. Purpose of the automated system for collection, processing, display, and analysis of air situation data “Virazh-Tablet”. 2. Composition of the hardware and software components of the “Virazh-Tablet” system.
11.	Practical class	12	6	6	Lesson 2. Familiarization with the main capabilities and interface of the “Virazh-Tablet” software suite 1. Performing tasks aimed at familiarization with the interface and main functional modes of the “Virazh-Tablet” software suite. 2. Task completion and analysis of the obtained results.
12.	Practical class	12	6	6	Lesson 3. Features of implementing geographic information systems on modern programming shell platforms. Working with relational databases. 1. Technological approaches to developing geographic information systems on the Borland Delphi platform. 2. Publishing relational databases using MIDAS and DCOM technologies.
Total for the topic		28	14	14	
Topic 4. Ministry of Defence of Ukraine Electronic Document Management System “SEDO”					
13.	Lecture	4	2	2	Lesson 1. General information about the automated control and record-keeping system. 1. Regulatory documents governing document management in the Armed Forces of Ukraine. 2. Automated control and record-keeping system (ASCOD) as a subsystem of the MoD electronic document management system (SEDO). 3. Deployment scheme of the protected SEDO system within the structural units of the Ministry of Defence and the Armed Forces of Ukraine.
14.	Practical class	8	4	4	Lesson 2. Installation of the protected SEDO software. 1. Features of installation and configuration of the LOZA-1M system. 2. Installation of the “IIT Secure Connections-2” software. 3. Installation of Oracle 9i Client. 4. Installation of the ASCOD software.
15.	Practical class	8	4	4	Lesson 3. Practice on configuring the Oracle DBMS as part of the MoD SEDO architecture. 1. Concept of a registration card (RC) and a control card (CC). 2. Creating and working with RCs. 3. Processing and registering incoming documents. 4. Workflow and execution of incoming documents. 5. Working with files and resolutions.
16.	Practical class	24	12	12	Lesson 4. Working with the user workstation (Executor’s Automated Workplace).

					<ol style="list-style-type: none"> 1. Familiarization with the interface of the “PTK C” software module. 2. System configuration. 3. Operations with documents. 4. Attaching files to documents. 5. Searching within the system.
Total for the topic		44	22	22	
Topic 4. Video Surveillance Information System. Organization of Video Conferencing Information Systems					
17.	Lecture	4	2	2	Lesson 1. Video Surveillance Information System. Organization of Video Conferencing Information Systems. <ol style="list-style-type: none"> 1. Video surveillance information system. 2. Organization of video conferencing information systems.
18.	Practical class	8	4	4	Lesson 2. Organization of Video Surveillance Information Systems. <ol style="list-style-type: none"> 1. Task setting. 2. Task execution and analysis of the obtained results.
19.	Practical class	6	2	4	Lesson 3. Organization of Video Conferencing Information Systems. <ol style="list-style-type: none"> 1. Task setting. 2. Task execution and analysis of the obtained results.
Total for the topic		18	8	10	
Final assessment		2	2	-	Credit (pass/fail)
Total for the educational component		150	74	76	

MS 02. METHODS AND TOOLS FOR INFORMATION RESEARCH, ANALYSIS, AND INFLUENCE ON NETWORK SERVICES OF CORPORATE NETWORKS

General Aim of the Educational Programme Component

The purpose of studying the educational programme component “Methods and Tools for Information Research, Analysis, and Influence on Network Services of Corporate Networks” is to provide learners with knowledge of the methodological foundations of information research and information warfare, and to develop skills in the practical application of typical methods and tools of information research and cyber operations within cyberspace.

This ensures the ability to perform tasks and duties (functions) in the scope defined by the Professional Standard for a Tactical-Level Officer in Mathematical, Information, and Software Support of Military Information Systems, taking into account the experience of combat operations and the ongoing war in Ukraine.

As a result of studying this educational component, learners acquire

Knowledge of:

the methodological foundations of information research and information warfare within military information systems;
the architectural design of modern systems for early detection and counteraction to cyber threats in military information systems;
the architectural structure of modern automated information retrieval systems;
modern technologies and methods for protecting services of military infocommunication systems.

Skills in:

solving specific cyber intelligence tasks through information search and analytical processing using automated information retrieval systems, including specialized systems, in the process of military decision-making;
detecting cyberattacks on the information infrastructure of the Ministry of Defence of Ukraine and the Armed Forces of Ukraine;
analysing potential consequences upon detection of potentially dangerous defects or vulnerabilities in military information system software;
practical application of typical methods and tools of information research and cyber operations, taking into account combat experience and the ongoing war in Ukraine.

Organizational and Methodological Guidelines:

Systematic reinforcement of the acquired knowledge and skills during practical, group, and self-study sessions is mandatory.

Learning materials designated for self-study shall be processed within the allocated time and included in both formative and summative assessments together with materials covered in classes under the guidance of the academic instructor.

All forms of training shall employ active learning methods and individual, group, and frontal knowledge assessment techniques. Formative assessment is conducted orally or via written express tests during classes, including electronic quizzes in various forms as determined by the instructor.

The following are used for all types of training sessions: classrooms, computer labs, multimedia equipment, visual learning aids, stationery, distance learning platforms, electronic study guides, and quizzes (as determined by the instructor).

Material and Technical Support

The following are used to support this educational programme component:

computers, multimedia equipment, interactive boards, information search and reconnaissance tools and systems, and software such as Kali Linux and the Snort intrusion detection system.

Information and Methodological Support

1. Smirnov O.A., Konoplytska-Slobodeniuk O.K., Smirnov S.A., Buravchenko K.O., Smirnova T.V., Polishchuk L.I. Information Security in Computer Networks: Textbook. – Kropyvnytskyi: Lysenko V.F. Publisher, 2020. – 295 p.
2. Kozachok V.A., Haidur H.I., Gakhov S.O., Khmelevskyi R.M., Chumak N.S. Security Policies: Textbook for Higher Education Students. – Kyiv: State University of Telecommunications, Institute of Information Security, 2020. – 167 p.
3. Yudin O.K., Bohush V.M. Information Security of the State. – Kharkiv: Konsum, 2004. – 508 p.
4. Zhylyn A.V., Shapoval O.M., Uspenskyi O.A. Information Protection Technologies in Information and Telecommunication Systems: Textbook. – Kyiv: Igor Sikorsky KPI, “Polytechnica” Publishing, 2021. – 213 p.
5. Alenin O.I., Habinet A.V., Rokovyι O.P., Stirenko S.H., Illiashenko O.O., Strielkina A.A. Methods and Tools for Technical Audit of Information Security in Computer Systems and Networks: Practical Manual. / Ed. by V.S. Kharchenko – Kharkiv: National Aerospace University “KhAI”, 2017. – 136 p.
6. Ostapov S.E., Yevseiev S.P., Korol O.H. Information Protection Technologies: Textbook. – Kharkiv: KhNEU Publishing, 2013. – 476 p.
7. Honcharova L.L., Voznenko A.D., Stasiuk O.I., Koval Yu.O. Fundamentals of Information Protection in Telecommunication and Computer Networks. – Kyiv, 2013. – 435 p.
8. Buriachok V.L., Tolubko V.B., Khoroshko V.O., Toliupa S.V. Information and Cyber Security: Socio-Technical Aspect: Textbook. / Ed. by Prof. V.B. Tolubko. – Kyiv: State University of Telecommunications, 2015. – 288 p.
9. Verner I.Ye., Kozakov Yu.I., Novikov Yu.O., Riabtsev V.V., Serhieiev O.Yu., Sbitnev A.I., Permiakov O.Yu. Application of Information Technologies in the Work of Command Authorities. Part 2: Textbook. – Kyiv: National Defence University of Ukraine, 2006. – 368 p.
10. Voitovych O.P., Yuvkovetskyi O.S. Classification of Web Resource Vulnerabilities. Article, PDF resource.

11. Voitovych O.P., Yuvkovetskyi O.S. Plug-in Protection Against SQL Injections. Article, PDF resource.
12. Sukhyi O.L., Milenin V.M., Taradainyk V.M. Search Algorithms in Information Systems: Methodological Guidelines. – Kyiv, 2015. – 2.0 printer’s sheets.
13. Skorokhodko E.F. Linguistic Foundations of Information Retrieval Automation. – Kyiv: Vyshcha Shkola, 1970. – 242 p.
14. Honcharova L.L., Voznenko A.D., Stasiuk O.I., Koval Yu.O. Fundamentals of Information Protection in Telecommunication and Computer Networks. – Kyiv, 2013. – 435 p.
15. Alenin O.I., Habinet A.V., Rokovyi O.P., Stirenko S.H., Illiashenko O.O., Strielkina A.A. Methods and Tools for Technical Audit of Information Security in Computer Systems and Networks: Practical Manual. / Ed. by V.S. Kharchenko – Kharkiv: National Aerospace University “KhAI”, 2017. – 136 p.
16. Verner I.Ye., Kozakov Yu.I., Novikov Yu.O., Riabtsev V.V., Serhieiev O.Yu., Sbitnev A.I., Permiakov O.Yu. Application of Information Technologies in the Work of Command Authorities. Part 2: Textbook. – Kyiv: National Defence University of Ukraine, 2006. – 368 p.
17. Antoniuk A.O., Zhora V.V. Theoretical Foundations of Modelling and Analysis of Information Protection Systems. – Irpin: National University of the State Fiscal Service of Ukraine, 2010. – 310 p.

List of Topics and Distribution of Academic Hours by Types of classes

№	Type of Training Activities and Assessment	Total Hours	Include		Title of the Topic and Learning Questions
			Classroom	Self-study	
1	2	3	4	5	6
Topic 1. Fundamental Patterns of Cyberspace Development. Information Research and Reconnaissance.					
1.	Lecture	2	2		Lesson 1. Fundamental patterns of cyberspace development. 1. Subject and scope of the course. 2. Fundamental patterns of cyberspace development. 3. Legal foundations for activities related to information processing.
2.	Group class	4	2	2	Lesson 2. Methods and means of reconnaissance in cyberspace. Key definitions.

					1. The role and place of information reconnaissance in obtaining data from a typical object of information research. 2. Methodological approaches to organizing information reconnaissance.
3.	Practical class	6	4	2	Lesson 3. Organizing information reconnaissance of remote information nodes via WEB service. SQL-injection technique. 1. Tasking to organize information research of a remote node using SQL injection. 2. Task execution. Analysis of obtained results.
4.	Group class	4	2	2	Lesson 4. Organizing information reconnaissance of remote information nodes using e-mail service. 1. Tasking for organizing information reconnaissance of remote nodes via e-mail service. 2. Task execution. Analysis of obtained results.
Total for the topic		16	10	6	
Topic 2. General Principles of Organizing Information Search.					
5.	Lecture	2	2		Lecture 1. Information search. 1. Key concepts, tasks and technologies of information search. 2. Organization of search: technology and main methods. General scheme of information search. 3. Characteristics of information search.
6.	Group class	4	2	2	Lesson 2. Information-retrieval systems. 1. Key concepts and terms. Composition and structure of automated information-retrieval systems. 2. Characteristics of information-retrieval systems. 3. Classification of automated information-retrieval systems. 4. Search bots (search robots).
7.	Practical class	6	4	2	Lesson 3. Practice using information search tools. 1. Tasking for information search using passive data collection tools. 2. Task execution. Analysis of obtained results.
8.	Practical class	10	8	2	Lesson 4. Practice using information search tools by scanning methods. 1. Tasking for collecting network information using scanning methods. 2. Task execution. Analysis of obtained results.
Total for the topic		24	18	6	
Topic 3. Information Retrieval Languages. Information Search in Internet/Intranet Environment. Social Network Research					
9.	Lecture	4	2	2	Lesson 1. Information retrieval languages. 1. Linguistic support of information retrieval. Linguistic tools for search. 2. Structure and main characteristics of information retrieval languages. 3. Classification of types and kinds of information retrieval languages.

10.	Group class	6	4	2	Lesson 2. Context-dependent information search in Internet/Intranet networks. 1. Tasking for context-dependent information search in Internet/Intranet networks using web-oriented information retrieval systems. 2. Task execution. Analysis of obtained results.
11.	Group class	6	4	2	Lesson 3. Information search in social networks. Social engineering. 1. Tasking for implementing technological techniques of social network information research. 2. Task execution. Analysis of obtained results.
Total for the topic		16	10	6	
Topic 4. Mathematical Foundations of Automated Information Retrieval					
12.	Lecture	4	2	2	Lesson 1. Basic models of information retrieval. 1. Boolean model. 2. Vector space model.
13.	Practical class	6	4	2	Lesson 2. Practice in applying cluster analysis methods in organizing information retrieval. 1. Tasking for applying cluster analysis methods in organizing information retrieval. 2. Task execution. Analysis of obtained results.
Total for the topic		10	6	4	
Topic 5. Organization of Information Reconnaissance in Wireless Networks					
14.	Lecture	4	2	2	Lesson 1. Objectives and tasks of analytical data processing technologies in distributed information networks. 1. Concepts of wireless networks. Encryption in wireless networks. Threats to wireless networks. 2. Methodology for conducting information influence on a wireless network. Tools and instruments.
15.	Practical class	4	2	2	Lesson 2. Practice in applying methods of information reconnaissance in wireless networks. 1. Tasking for implementing technological techniques of information reconnaissance of wireless network nodes based on the 802.11 standard. 2. Task execution. Analysis of obtained results.
Total for the topic		8	4	4	
Topic 6. Analytical Processing of Information					
16.	Lecture	4	2	2	Lesson 1. Objectives and tasks of technologies for analytical information processing in distributed information networks. 1. Objectives and tasks of analytical information processing technologies in distributed information networks. 2. Means of obtaining information (knowledge management portals, monitoring of network news, search engine queries, content monitoring) taking into account the experience of the Joint Forces Operation (JFO).

17.	Practical class	4	2	2	Lesson 2. Practice in applying methods of analytical information processing based on information search results. 1. Tasking for applying methods of analytical information processing based on information search results. 2. Task execution. Analysis of obtained results.
Total for the topic		8	4	4	
Topic 7. Objectives, Tasks, and Means of Information Warfare in Information and Telecommunication Systems					
18.	Lecture	2	2		Lesson 1. Theoretical and empirical foundations of information warfare. 1. Introduction to the discipline. 2. Forms and methods of information warfare. Methodological foundations of information warfare. 3. Security issues based on the specifics of the TCP/IP protocol stack. 4. Basic concepts of the demilitarized zone (DMZ). Purpose, principles of operation, and main types of network firewalls.
19.	Practical class	6	2	4	Lesson 2. Tools for preparing remote computer attacks. 1. Capabilities and basic techniques for using the nmap utility. 2. Identification of active network hosts (nmap utility). 3. Identification of active network services (nmap utility).
20.	Lecture	2	2		Lesson 3. Principles of cyber influence in information and telecommunication systems. 1. The nature of cyber influence in information and telecommunication systems. 2. Overview of cyber influence methods.
21.	Practical class	6	2	4	Lesson 4. Research of server software in information and telecommunication systems. 1. Identification of operating systems. 2. Identification of network service software.
22.	Group class	4	2	2	Lesson 5. Analysis of computer network traffic. 1. Capabilities and basic techniques for using the tcpdump utility. 2. Analysis of transport- and network-layer traffic (tcpdump utility). 3. Analysis of application-layer traffic (tcpdump utility).
23.	Practical class	6	2	4	Lesson 6. Tools for analyzing network traffic. 1. Analysis of transport- and network-layer traffic. 2. Analysis of application-layer traffic.
24.	Practical class	6	2	4	Lesson 7. Tools for creating covert command-and-control and data transmission channels. 1. Capabilities and basic techniques for using the netcat utility. 2. Creation of covert command channels (netcat utility). 3. Creation of covert data transmission channels (netcat utility).

Total for the topic		32	14	18	
Topic 8. Cryptographic Protection of Information					
25.	Lecture	2	2		Lesson 1. Introduction to methods of cryptographic protection of information. 1. Classical methods of cryptographic protection of information. 2. One-way (irreversible) encryption. 3. Software-technical methods of information authentication. 4. Concept of the electronic digital signature.
26.	Group class	4	2	2	Lesson 2. Protection of e-mail using the PGP system. 1. Capabilities and basic techniques for using the PGP system. 2. Generation of cryptographic keys. 3. Delivery/distribution of public keys to correspondents.
27.	Practical class	4	2	2	Lesson 3. Basic techniques for using the PGP system. 1. Encrypting/decrypting e-mail. 2. Decentralized distribution of public cryptographic keys. 3. Centralized distribution of public cryptographic keys.
28.	Group class	4	2	2	Lesson 4. The SSH service. 1. Purpose and contents of the OpenSSH package. 2. Configuring the SSH service. 3. Basic techniques for using client programs from the SSH package.
29.	Practical class	4	2	2	Lesson 5. Basic techniques for deploying the SSH service. 1. Installing the OpenSSH package. 2. Configuring the package software. 3. Basic client usage techniques.
30.	Lecture	2	2		Lesson 6. Public Key Infrastructure (PKI) 1. PKI infrastructure. 2. Key components of PKI. 3. PKI hierarchy. 4. Application of PKI in the Armed Forces of Ukraine.
31.	Practical class	4	2	2	Lesson 7. Basic techniques for deploying a PKI service. 1. Installing a PKI service on Windows Server. 2. Configuring the PKI service on Windows Server. 3. Basic techniques for using PKI.
Total for the topic		24	14	10	

Topic 9. Detection of Computer Attacks; Network Firewalling					
32.	Lecture	2	2		Lesson 1. Detection of computer attacks. 1. Signs of software attacks. 2. Sources of information about software attacks. 3. Options for responding to software attacks. 4. Main approaches to event analysis used in attack detection. 5. Classification of intrusion detection systems by the level of the information infrastructure at which detection occurs. 6. Architecture of automated intrusion detection systems.
33.	Group class	4	2	2	Lesson 2. Basic techniques for using Metasploit to perform penetration testing of an information system. 1. Main Kali Linux modules. 2. Procedures for deploying Kali Linux. 3. Procedures to automate vulnerability assessment of an operating system
34.	Practical class	6	2	2	Lesson 3. Basic techniques for using the snort system. 1. Detection of attacks at the network and transport layers. 2. Detection of attacks at the application layer.
Total for the topic		10	6	4	
Assessment activities		2	2	-	credit (pass/fail)
Total for the educational component		150	88	62	