

UNCLASSIFIED

**MINISTRY OF DEFENCE OF UKRAINE
MILITARY ACADEMY (ODESA)**

**AN EXTRACT
FROM THE EDUCATIONAL AND RESEARCH PROGRAMME
“Weapons and Military Equipment”
(ID in the Unified State Electronic Database on Education: 72419)
Third (Educational and Research) Level of Higher Education**

Field of Study	K Security and Defence
Speciality	K7 Weapons and Military Equipment
Qualification	Doctor of Philosophy in Security and Defence

APPROVED

by the Academic Council of the Military Academy (Odesa)
(Minutes No. 14 dated 26.05.2026)

Chair of the Academic Council
of the Military Academy (Odesa)

Major General _____ Andrii KOVALCHUK
(Enacted by Order of the Commandant of the Military
Academy (Odesa), No.174 dated 23.06.2026)

Odesa 2026

UNCLASSIFIED

FOREWORD

Developed by the Working Group:

Chair of the Working Group:

BRATCHENKO Hennadii, Doctor of Technical Sciences, Professor, Leading Research Fellow, Innovative Technologies Research Laboratory, Research Directorate for the Development and Employment of Ground Forces Logistics Units, Research Centre, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

Members of the Working Group:

LISOVENKO Denys, Candidate of Technical Sciences, Associate Professor, Deputy Commandant for Research, Military Academy (Odesa); Colonel.

HONCHARUK Anton, Candidate of Technical Sciences, Senior Research Fellow, Head of the Research Centre, Military Academy (Odesa); Colonel.

KOLESNYK Yevhenii, Doctor of Technical Sciences, Associate Professor, Head of the Research Directorate for the Development and Employment of Ground Forces Logistics Units, Research Centre, Military Academy (Odesa); Colonel.

YARMOLIUK Vadym, Candidate of Technical Sciences, Senior Research Fellow, Head of the Department of Armoured Vehicles, Faculty of Air Assault Forces and Marine Corps, Military Academy (Odesa); Colonel.

SUSLOV Volodymyr, Doctor of Philosophy, Head of the Department of Foreign Languages, Military Academy (Odesa); Colonel.

OSTAPCHUK Taras, Candidate of Pedagogical Sciences, Associate Professor, Head of the Department of Humanities and Socioeconomic Disciplines, Military Academy (Odesa); Colonel.

LYSYI Oleksandr, Candidate of Technical Sciences, Associate Professor, Head of the Department of Automotive Engineering, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Colonel.

BEREZENSKYI Ruslan, Candidate of Technical Sciences, Associate Professor, Head of the Department of Motor Transport Support Organisation and Automotive Training, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Colonel.

KRAVCHUK Oleh, Candidate of Technical Sciences, Senior Research Fellow, Deputy Head of the Department of Electrical Engineering and Weapons Systems, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Colonel.

MELNYK Volodymyr, Doctor of Philosophy, Professor in the Department of Motor Transport Support Organisation and Automotive Training, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Colonel.

SHELUKHIN Serhii, Candidate of Technical Sciences, Senior Research Fellow, Professor in the Department of Automotive Engineering, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Colonel.

SKACHKOV Valerii, Doctor of Technical Sciences, Professor, Leading Research Fellow, Research Department for the Development and Employment of Ground Forces Rear Support Units, Research Directorate for the Development and Employment of Ground Forces Logistics Units, Research Centre, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

POPOVICHENKO Oleksandr, Candidate of Military Sciences, Associate Professor, Leading Research Fellow, Research Department for the Development and Employment of Marine Corps Units, Research Directorate for the Development and Employment of Air Assault Forces, Marine Corps, Special Operations Forces and Military Reconnaissance Units, Research Centre, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

HOLOVAN Viacheslav, Candidate of Technical Sciences, Professor, Professor in the Department of Ground-Based Weapons Systems and Means of Engagement, Educational and Research Institute of Logistics Support, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

KICHMARENKO Olha, Doctor of Physical and Mathematical Sciences, Professor, Professor in the Department of Fundamental Sciences, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

MALTSEV Oleksandr, Doctor of Technical Sciences, Professor, Professor in the Department of Motor Transport Support Organisation and Automotive Training, Educational and Research Institute of Logistics Support, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

SINIAVSKYI Oleh, Candidate of Physical and Mathematical Sciences, Associate Professor in the Department of Fundamental Sciences, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

Additional contributors to the development of the Educational and Research Programme:

External stakeholders:

ARTSYMOVYCH Vitalii, Head of the Military Science Department, Headquarters of the Ground Forces Command of the Armed Forces of Ukraine; Colonel.

HULIAK Oleh, Deputy Director General, Joint Stock Company “Ukrainian Defence Industry”.

Graduates of the Educational and Research Programme “Weapons and Military Equipment”:

KOTOV Denys, Doctor of Philosophy, Associate Professor in the Department of Automotive Engineering, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Lieutenant Colonel.

DRUZHYNIN Vitalii, Doctor of Philosophy, Associate Professor in the Department of Fuel and Lubricants Supply, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Lieutenant Colonel.

TARASENKO Serhii, Doctor of Philosophy, Senior Lecturer in the Department of Automotive Engineering, Educational and Research Institute of Logistics Support, Military Academy (Odesa); Lieutenant Colonel.

SHKURPIT Oleksandr, Doctor of Philosophy, Head of the Research Laboratory for the Development and Employment of Robotic Systems and Technical Reconnaissance Assets, Research Directorate for the Development and Employment of Air Assault Forces, Marine Corps, Special Operations Forces and Military Reconnaissance Units, Research Centre, Military Academy (Odesa); Lieutenant Colonel.

Doctoral students enrolled in the Educational and Research Programme “Weapons and Military Equipment”:

DAVLETOV Aider, first-year military doctoral student; Lieutenant Colonel.

BONDARENKO Oleksandr, second-year military doctoral student; Major.

MIKRIUKOV Ivan, third-year military doctoral student; Lieutenant Colonel.

NAUMOV Oleksandr, fourth-year military doctoral student; Major.

Guarantor of the Educational and Research Programme:

BRATCHENKO Hennadii, Doctor of Technical Sciences, Professor, Leading Research Fellow, Innovative Technologies Research Laboratory, Research Directorate for the Development and Employment of Ground Forces Logistics Units, Research Centre, Military Academy (Odesa); civilian employee of the Armed Forces of Ukraine.

Reviews and feedback from external stakeholders:

The following were taken into account:

1. Changes to the legal and regulatory framework governing higher and military education.
2. Proposals from internal and external stakeholders interested in the development of educational activities at the Military Academy (Odesa).
3. Surveys of higher education students and members of the academic community.
4. Findings from the accreditation reviews of educational programmes conducted at the Military Academy (Odesa) during the 2025–2026 academic year, together with proposals and recommendations from foreign advisers.

UNCLASSIFIED

UNCLASSIFIED

I. PROFILE OF THE EDUCATIONAL AND RESEARCH PROGRAMME
Speciality: K7 Weapons and Military Equipment

1. General Information	
Full name of the higher education institution and its structural unit/ Повна назва ЗВО та структурного підрозділу	Military Academy (Odesa)/ Військова академія (м. Одеса)
Higher education degree and qualification title in the original language/ Ступінь вищої освіти та назва кваліфікації мовою оригіналу	Doctor of Philosophy; Doctor of Philosophy in the field of Security and Defence, specialising in Weapons and Military Equipment/ Доктор філософії, доктор філософії у галузі “Безпека та оборона” за спеціальністю “Озброєння та військова техніка”
Program title/ Назва освітньої програми	Weapons and Military Equipment/ Озброєння та військова техніка
Program type/ Тип освітньої програми	Educational and Research Programme, 52 ECTS credits. Duration of study: 4 years./ Освітньо-наукова програма, 52 кредитів ЄКТС. Термін навчання 4 роки.
Type of diploma/ Тип диплому	Doctor of Philosophy diploma in the field of Security and Defence, specialising in Weapons and Military Equipment; single award. Taught component: 52 ECTS credits. Duration of study: 4 years./ Диплом доктора філософії у галузі “Безпека та оборона” за спеціальністю “Озброєння та військова техніка”, одиничний, обсяг освітньої складової – 52 кредита ЄКТС. Термін навчання 4 роки
Accreditation status/ Наявність акредитації	Accredited by the National Agency for Higher Education Quality Assurance on 29 April 2025. Certificate No. 11406. Programme accreditation certificate valid until 1 July 2026./ Акредитовано Національним агентством із забезпечення якості вищої освіти 29.04.2025. Сертифікат №11406 . Строк дії сертифікату про акредитацію освітньої програми 01.07.2026.
Cycle/level/ Цикл/рівень	Ukrainian National Qualifications Framework: third cycle / Level 8; QF-EHEA: third cycle; EQF-LLL: Level 8/ НРК України – 3 цикл / 8 рівень, QF-EHEA – третій цикл / EQF-LLL– 8 рівень
Entry requirements/ Передумови	Completion of the second (Master’s) level of higher education. Applicant requirements are specified in the Admission Regulations of the Military Academy (Odesa)/

	Наявність другого (магістерського) рівня вищої освіти. Вимоги до вступника визначаються Правилами прийому до Військової академії (м. Одеса)
Language(s) of instruction/ Мова(и) викладання	Ukrainian/ Українська
Programme validity period/ Термін дії освітньої програми	4 years/ 4 роки
Permanent web address of the programme description	http://vaodesa.mil.gov.ua/
2. Programme Objectives	
To train a highly qualified specialist capable of independently conducting research in the technical sciences, generating new ideas, addressing research problems in the military domain related to security and defence, applying research and teaching methodologies, and producing original research findings that contribute new knowledge to both theory and practice.	
3. Programme Characteristics	
Subject Area	Subject Area Field of study: K Security and Defence. Speciality: K7 Weapons and Military Equipment. Object(s) of study and/or professional activity: weapons and military equipment; the improvement, operation (employment) and restoration of individual items, complexes and systems of weapons and military equipment; and legal regulation in the field of weapons and military equipment. Theoretical content of the subject area: theories, notions, principles, concepts and categories relating to the operation (employment) and restoration of individual items, complexes and systems of weapons and military equipment. Methods, techniques and technologies: methods and techniques for the design, modelling and testing of weapons and military equipment; technologies for their operation, improvement and restoration; and technologies for information collection and processing and decision-making in the field of weapons and military equipment. Tools and equipment: information and analytical tools; decision-support systems for weapons and military equipment; specialised software; simulation tools; automated control systems; electronic databases for the field of weapons and military equipment; field and test-range facilities and equipment; and individual items, complexes and systems of weapons and military equipment.
Programme orientation	An academically oriented Educational and Research Programme leading to the degree of Doctor of Philosophy.

	The programme content focuses on contemporary research in security and defence and draws on current global trends in the development of weapons and military equipment
Main Focus of the Programme and Specialisation	Educational focus: the preparation of highly qualified academic staff for higher military educational institutions and higher education institutions. Research focus: the investigation and improvement of technological processes involved in the design, testing, operation and repair of weapons and military equipment. Keywords: teaching and research activities; scientific research; structural and parametric synthesis; optimisation; security and defence; weapons and military equipment.
Distinctive Features of the Programme	The programme integrates education and research to prepare competitive researchers and academic staff capable of addressing research and teaching challenges in the field of weapons and military equipment. The programme for the training of highly qualified specialists builds on the competencies acquired at the Military Academy (Odesa) at the first (Bachelor's) and second (Master's) levels of higher education in the specialities J8 Motor Transport, G3 Electrical Engineering, and K7 Weapons and Military Equipment. The programme is multifaceted, combining the development of teaching expertise with research activities and encouraging the further development of existing research schools and the establishment of new ones. It draws on experience in the employment of weapons and military equipment in contemporary armed conflicts, together with emerging global trends in the development and introduction of advanced weapons, military equipment complexes and systems. The programme enables students to establish a balanced individual learning pathway and acquire additional professional competencies within that pathway.
4. Graduate Employment and Further Study Opportunities	
Employment Opportunities	Graduates holding a Doctor of Philosophy degree in Security and Defence may be employed by higher military educational institutions, military educational units of higher education institutions, research institutions, or other educational institutions with specific operating conditions that train specialists for the Defence Forces of Ukraine, as well as institutions providing continuing professional development and postgraduate education in the field of education. Professional positions include: • Lecturer at a higher military educational institution; • Senior Lecturer at a higher military educational institution; • Associate Professor at a higher military educational institution; • Research Fellow; • Senior Research Fellow; • Head of a Research Laboratory or Department.

Further Study	Pursuit of the Doctor of Sciences degree and additional qualifications through adult education and professional military education.
5. Teaching and Assessment	
Teaching and Learning	Teaching and learning are based on the principles of collaborative partnership, student-centred learning, dialogue, personalisation, individualisation, problem-based learning, and academic freedom for students and teaching staff. The principal forms of instruction include lectures, group sessions, seminars, practical classes, project work, consultations, independent study and individual assignments. Interactive teaching methods include projects, discussions, presentations, quizzes, role-play, situational exercises, case studies, modelling and other approaches.
Assessment	Assessment comprises entry-level, continuous, semester and final assessment, together with the public defence of the dissertation before a specialised academic council. Entry-level and continuous assessment is conducted by teaching staff across all types of classroom instruction and by research supervisors through dissertation consultations with students at the third, educational and research level of higher education. Semester assessment consists of student reports, presented twice a year at departmental meetings, on progress in implementing their individual plans. Final assessment involves a departmental review of the completion of the taught component, in the form of a report, and the research component, in the form of a preliminary review of the dissertation. Learning achievement is assessed using a 100-point scale and the national grading scale: 90–100 “excellent”, 80–89 “Very good”, 65–79 “Good”, 55–64 “Satisfactory” 50–54 “Sufficient”, 1–49 “Unsatisfactory”, with an opportunity to resit
6. Programme Competencies	
Integrated Competence	The ability to address complex theoretical and practical problems in Security and Defence arising during the creation (development and manufacture), operation, restoration and disposal of weapons and military equipment; to analyse existing research, generate new integrated knowledge and undertake professional activities. The ability to generate new ideas, address complex problems in Security and Defence and/or research and innovation, apply research and teaching methodologies, and conduct independent research whose findings demonstrate scientific novelty and have theoretical and practical significance.
General Competencies (GC)	GC 01. The ability to engage in abstract thinking, analysis and synthesis in developing a systematic scientific worldview, professional ethics and a broad cultural perspective.
	GC 02. The ability to apply theoretical knowledge in the practical conduct of research.

	GC 03. The ability to develop research and innovation projects and initiate their practical implementation.
	GC 04. The ability to communicate professionally with the wider research community and the public in the official state language and in one foreign language used within the European area.
	GC 05. An understanding of the importance of compliance with ethical standards and copyright requirements. The ability to undertake patent-related and innovation activities.
	GC 06. The ability to identify, formulate and solve problems, generate ideas and make well-founded decisions.
Specialised (Professional and Subject- Specific) Competencies (SC)	SC 01. The ability to develop theoretical methods and improve existing practical methods for technical decision-making.
	SC 02. The ability to contribute to technological processes for the development and creation of advanced weapons and military equipment and the modernisation of existing equipment, as well as to research into the dynamic parameters of information and control systems.
	SC 03. The ability to apply theoretical and experimental methods for technical decision-making and formulate research-based proposals and recommendations for optimising individual stages of the technological processes involved in designing and developing advanced weapons and military equipment, and improving existing items, complexes and systems.
	SC 04. The ability to develop and refine recommendations and research proposals through the analysis and synthesis of theoretical knowledge in order to optimise the structures and characteristics of weapons and military equipment complexes, individual items and their components.
	SC 05. The ability to independently conduct theoretical research into the creation of new and the modernisation of existing elements and components of weapons and military equipment items, complexes and systems; improve their tactical, operational, economic, environmental and ergonomic characteristics; and disseminate the resulting research findings.
	SC 06. The ability to apply theoretical foundations and methods for the technical substantiation of requirements for weapons and military equipment systems, complexes and individual items, including their separate subassemblies, modules and assemblies.
	SC 07. The ability to improve existing theoretical research tools and formulate scientific and technical proposals to enhance the combat effectiveness of weapons and military equipment systems and complexes.
	SC 08. The ability to improve methods for the experimental investigation of individual subassemblies and assemblies, systems and complexes of weapons and military equipment.
	SC 09. The ability to conduct theoretical research into the improvement of metrological support for weapons and military equipment.

	SC 10. The ability to improve existing methods and means for the restoration, maintenance and disposal of weapons and military equipment.
	SC 11. The ability to improve existing methods for increasing the survivability of weapons and military equipment through enhanced protection.
	SC 12. The ability to improve theoretical research methods for increasing the combat effectiveness of the employment of weapons and military equipment.
7. Programme Learning Outcomes	
General and Specialised Professional Training	LO 01. Conduct a thorough analysis of relevant scholarly works by Ukrainian and international researchers. Independently define research aims and problems and address them through original research findings that contribute to broader civilisational progress.
	LO 02. Conduct independent research on weapons and military equipment, taking account of domestic and international experience.
	LO 03. Apply general scientific and philosophical knowledge as a foundation for an individual scientific worldview, professional ethics and a broad cultural perspective.
	LO 04. Present and defend original research findings within the research community, orally and in writing, in the official state language and foreign languages.
	LO 05. Implement original innovative proposals in the patenting and licensing domain.
	LO 06. Conduct research, at an appropriate professional level, into the effects of individual components, subassemblies and assemblies on the effectiveness of the employment and operation of weapons and military equipment, including complexes and systems.
	LO 07. Manage research projects and prepare funding proposals for independent research.
	LO 08. Organise collaboration with specialists from different fields and research institutions within individual research projects, in accordance with the principles of professional ethics and ethical professional conduct.
	LO 09. Apply existing theoretical methods to the practical optimisation of metrological support, maintenance and disposal of weapons and military equipment, and to improvements in their survivability and combat effectiveness.
	LO 10. Validate original theoretical findings through practical laboratory and full-scale experiments and tests.
	LO 11. Apply contemporary research technologies and innovative methods to optimise the structures and characteristics of complexes, individual items and their components within the speciality, and present original research findings with well-substantiated arguments.
	LO 12. Apply modern information and communication technologies to implement original scientific and technical proposals for improving existing theoretical tools used in the development and enhancement of weapons and military equipment.

	LO 13. Provide substantive justification for theoretical and practical methods of increasing the combat effectiveness of the employment of weapons and military equipment.
8. Resources Supporting Programme Delivery	
Staffing	Researchers and academic staff involved in the programme are permanent employees of the Military Academy. They meet the requirements established by the Licensing Conditions for Educational Activities, hold academic degrees and titles, and demonstrate an established level of research and professional activity. Programme competencies are developed through instruction provided by professionals with relevant occupational experience.
Facilities and Equipment	The programme is delivered using the facilities and equipment of the Military Academy (Odesa). These resources meet the licensing requirements for the provision of higher education services and are sufficient to ensure the quality of the educational process. Programme delivery is supported by an appropriate number of modern lecture theatres, laboratories, specialised teaching rooms and computer classrooms, individual workstations connected to internal local-area networks and the Internet, and departmental teaching and training facilities. Teaching and bibliographic support is provided through the Academy's general library, electronic library, library of materials for official use only, and classified library, together with their reading rooms. Their collections are regularly expanded through newly purchased publications and works produced by academic staff through the Academy's Editorial and Publishing Unit. Practical experimental research is conducted using the field training facilities of the Academy's Educational Process Support Centre, Military Unit A1465, Chornomorske urban-type settlement. Facilities supporting daily life and recreation include modern sports and training complexes, a stadium, sports grounds, a dining hall, an outpatient clinic and a club.
Information and Teaching Resources	Programme delivery uses the Military Academy's virtual learning environment, original teaching materials developed by staff, textbooks, study guides and other instructional and methodological resources. The Academy's official website, http://vaodesa.mil.gov.ua/, provides information on educational programmes, teaching, research and student development activities, structural units, admission regulations and contact details. Military doctoral students have access to all available library resources. The technological infrastructure, facilities and equipment required to support the educational process are available.
9. Academic Mobility	
National credit mobility	Based on bilateral agreements between the Military Academy (Odesa) and higher education institutions in Ukraine.
International credit mobility	Based on bilateral agreements between the Military Academy (Odesa) and higher education institutions in other countries.

Admission and education of international students	Not provided for.
--	-------------------

2. LIST OF EDUCATIONAL COMPONENTS AND THEIR LOGICAL SEQUENCE

2.1. List of Programme Components Compulsory Components

Code	Programme component	ECTS credits	Assessment
Compulsory Components			
General Training Block			
CC 1	Philosophy	4,0	Examination
CC 2	Operations Research Theory. Modelling of System Operating Processes	5,0	Examination
Subtotal:		9,0	
Professional Training Block			
CC 3	Fundamentals of the Creation and Development of Weapons and Military Equipment	8,0	Pass/fail assessment, Examination
CC 4	Fundamentals of Reliability Theory and the Operation of Weapons and Military Equipment	2,0	Pass/fail assessment
CC 5	Foreign Language for Specific Purposes	6,0	Pass/fail assessment, Examination
Subtotal:		16,0	
Research Training Block: Transferable Researcher Skills			
CC 6	Patent Research, Fundamentals of Bibliography and Intellectual Property	2,0	Pass/fail assessment
CC 7	Methodological Foundations of Dissertation Preparation and Defence	2,0	Pass/fail assessment
CC 8	Research Methodology for Weapons and Military Equipment Systems	4,0	Examination
CC 9	Analytical Methods in Military-Technical Research	3,0	Pass/fail assessment
Subtotal:		11,0	
Total compulsory components		36,0	
Elective Components of the Educational and Professional Program			
01.	Current Issues in the Psychology of Higher Military Education	3,0	Pass/fail assessment
02.	Current Issues in the Pedagogy of Higher Military Education	3,0	Pass/fail assessment
03.	Organisation of the Educational Process in a Higher Military Educational Institution	3,0	Pass/fail assessment
04.	Theoretical Foundations of Military Cybernetics	3,0	Pass/fail assessment
05.	Information and Analytical Activities in Research	3,0	Pass/fail assessment
06.	Scientometrics and Research Organisation	3,0	Pass/fail assessment

07.	Internet Technologies in the Educational Process of Higher Military Educational Institutions	3,0	Pass/fail assessment
08.	Applications of Artificial Intelligence Technologies in Education and Research	3,0	Pass/fail assessment
09.	Modelling of System Operating Processes	3,0	Pass/fail assessment
10.	Organisation of the Operation and Restoration of Weapons and Military Equipment	3,0	Pass/fail assessment
11.	Simulation Modelling in Applied Military Research	3,0	Pass/fail assessment
13.	Analysis and Evaluation of Military Command and Control Effectiveness	3,0	Pass/fail assessment
14.	Teaching Methodology Expertise of Academic Staff in Higher Military Educational Institutions	3,0	Pass/fail assessment
Practicum: Elective			
15.	Teaching Practicum	4,0	Pass/fail assessment
16.	Research Practicum	4,0	Pass/fail assessment
Total elective component workload: 16.0 ECTS credits (Students select courses totalling 12 ECTS credits from the electives offered within this Educational and Research Programme or other educational programmes. They must also select either the Teaching Practicum or the Research Practicum, each carrying 4 ECTS credits. The total elective workload is therefore 16 ECTS credits.)		16,0	
Total workload of the taught component of the Educational and Research Programme: 52.0 ECTS credits.		52,0	

2.2. Practical Component of the Programme

The **Teaching Practicum** is designed to enable students to attain all programme learning outcomes specified in the Educational and Research Programme (LO 1–13) and apply them in educational activities undertaken in academic positions.

During the practicum, students deepen their knowledge of the organisation and methodological support of the educational process in higher military educational institutions. They gain practical experience in planning, delivering and analysing teaching sessions, applying contemporary educational technologies and teaching methods, and assessing educational outcomes.

The practicum develops teaching expertise, communication skills, and organisational and managerial competencies. It strengthens the ability to make independent professional decisions, ensure the quality of the educational process, and integrate research achievements into teaching. Completion of the practicum deepens students' professional preparation for teaching and prepares them to perform effectively in academic positions.

The **Research Practicum** is designed to enable students to attain all programme learning outcomes specified in the Educational and Research Programme (LO 1–13) and consolidate and deepen their practical application in professional research activities undertaken in research positions.

During the practicum, students gain experience in organising and conducting independent research; applying contemporary methodological approaches and analytical and experimental methods; processing and interpreting research findings; preparing scholarly publications; and presenting and discussing their findings within the professional research community.

The practicum develops research, analytical, innovation, and project organisation competencies. It strengthens the ability to independently address complex research and practical problems, make well-founded decisions, and generate new scientific and technical ideas. Completion of the practicum deepens students' research training and prepares them for professional employment in research positions in security and defence.

2.3. Research Component of the Programme

The research component is documented in the student's individual research plan and forms an integral part of the military doctoral training curriculum.

The individual research plan specifies the timelines, requirements and forms of the student's planned and completed activities that count towards interim assessment. It must be agreed with the research supervisor or supervisors.

The research component requires the military doctoral student to conduct original research under the guidance of one or two research supervisors and present its results in a dissertation.

A dissertation submitted for the degree of Doctor of Philosophy in the field of education is an independent, comprehensive study that addresses current research problems in the field of study K Security and Defence or at the intersection of several fields. Its findings must constitute an original contribution to the body of knowledge and be disseminated through appropriate publications.

The research component comprises the following activities: conducting research and preparing the dissertation; disseminating research findings through publications and conference participation; final assessment through the defence of the dissertation.

3. FORM OF FINAL ASSESSMENT OF HIGHER EDUCATION STUDENTS

Public defence of research achievements presented in the form of a dissertation.

Final assessment is conducted openly and publicly, subject to compliance with Ukrainian legislation on the protection of state secrets.

Admission to the defence requires successful completion of this Educational and Research Programme, the student's individual study plan and the individual research plan.

Final assessment concludes with the issue of a document in the prescribed format certifying the award of the Doctor of Philosophy degree.

UNCLASSIFIED

UNCLASSIFIED

LIST OF ELECTIVE EDUCATIONAL COMPONENTS AVAILABLE TO STUDENTS ON THE EDUCATIONAL AND RESEARCH PROGRAMME, WITH A MAPPING OF COMPETENCIES AND LEARNING OUTCOMES TO EDUCATIONAL COMPONENTS

Titles of Educational Components	ECTS credits:	Competence	Learning outcomes
Current Issues in the Psychology of Higher Military Education	3,0	The ability to apply psychological principles and mechanisms to the design, organisation and optimisation of the educational process in higher military education, as well as to the personal development of service members and the effective functioning of military teams.	Analyse the psychological characteristics of participants in the educational process, apply psychological methods to improve learning effectiveness, and substantiate pedagogical decisions with due regard to individual and group psychological characteristics. Upon completion of the course, students will be able to provide a research-based rationale for, and apply, the psychological principles and mechanisms underlying the educational process in higher military education; analyse the mental processes and personal characteristics of service members and military groups; and design and implement effective psychological and pedagogical interventions in professional and research activities. Students will be able to: Recall the principal psychological categories, principles and mechanisms, and identify the mental processes, states and personality traits of service members. Explain the influence of psychological factors on learning activities and interpret the role of cognitive processes and motivation in the training of military professionals. Apply psychological methods in the educational process and use approaches suited to working with individuals and groups. Analyse students' psychological characteristics and identify factors affecting learning effectiveness and group interaction. Evaluate the effectiveness of pedagogical decisions from a psychological perspective. Justify the selection of methods for influencing individuals and groups. Develop psychologically informed pedagogical solutions and design measures to improve learning effectiveness and psychological readiness.
Current Issues in the Pedagogy of Higher Military Education	3,0	The ability to design, implement and evaluate the educational process in higher military education on the basis of contemporary pedagogical theories, innovative learning	Design and implement well-founded educational solutions in higher military education, apply contemporary educational technologies, analyse the effectiveness of the teaching and learning process, and adjust it in response to assessment findings. Upon completion of the course, students will be able to analyse, design and implement the educational process in higher military education using contemporary pedagogical concepts, innovative technologies and an evidence-based approach, ensuring the development of future officers' professional, leadership and research competencies. Students will be able to:

UNCLASSIFIED

		technologies and the principles of an evidence-based approach.	Recall the fundamental concepts of higher military education pedagogy and identify contemporary educational technologies and approaches. Identify and explain the principles governing the organisation of the educational process in higher military educational institutions, and interpret the role of innovative methods and information and communication technologies in the training of military professionals. Apply pedagogical methods and technologies when modelling teaching sessions and use tools for assessing learning outcomes. Analyse the effectiveness of the educational process and pedagogical decisions, and identify causal relationships between teaching methods and outcomes. Evaluate the quality of learning and the attainment of learning outcomes, and justify the selection of educational technologies. Design educational components, including sessions, modules and courses, and develop original pedagogical solutions and innovative approaches.
Organisation of the Educational Process in a Higher Military Educational Institution	3,0	The ability to address complex tasks and problems relating to the organisation of the educational process in a higher military educational institution; design, manage and improve educational activities on the basis of contemporary pedagogical theories and practices; ensure educational quality; introduce innovative learning technologies; make well-founded managerial decisions under conditions of uncertainty; and comply with the principles of academic integrity and the standards of higher and military education.	Address complex specialised tasks relating to the organisation of the educational process in a higher military educational institution; design and implement educational programmes and courses in accordance with contemporary pedagogical approaches and standards; organise and manage the educational process and ensure the quality of student preparation; apply innovative teaching and assessment methods; make well-founded managerial decisions; and monitor, analyse and improve educational activities in accordance with the principles of academic integrity. Students will be able to: Recall the legal and regulatory framework governing the organisation of the educational process in higher military educational institutions; the fundamental concepts, principles and structure of the educational process; higher and military education standards; and quality assurance requirements. Understand and explain the nature, aims and objectives of the educational process in higher military educational institutions; the relationships between the elements of the educational system and its management; the principles of educational programme and course design; and the role of innovative educational technologies and academic integrity. Apply contemporary methods for organising, planning and delivering the educational process, innovative teaching and assessment technologies, and approaches to educational management and quality assurance. Analyse the effectiveness of educational programmes, courses and teaching methods; educational outcomes and students' level of preparation; and risks and problems associated with organising the educational process. Evaluate the quality of the educational process against standards and criteria, the effectiveness of managerial decisions in education, and the appropriateness of introducing innovative approaches and technologies. Develop educational programmes, curricula and teaching resources; measures to improve the organisation of the educational process; educational management models; and education quality assurance systems.
Theoretical Foundations of Military Cybernetics	3,0	The ability to apply the theoretical principles of cybernetics to the analysis, modelling and control of complex military systems and to the evaluation of their effectiveness, stability and adaptability under conditions of	Analyse control and information exchange processes in military systems using the laws and principles of cybernetics; construct formalised models of these processes; evaluate operational effectiveness; and substantiate decisions aimed at improving system stability and controllability. Students will be able to: Understand the fundamental concepts and categories of cybernetics, including control, feedback, information, entropy, adaptation and self-organisation, and their role in the functioning of military systems. Distinguish between centralised, decentralised, hierarchical and adaptive control systems in the military domain and analyse their properties.

UNCLASSIFIED

UNCLASSIFIED

		uncertainty and adversarial interference.	Formulate problems involving the analysis and synthesis of military control systems, taking account of information, time and resource constraints. Construct formalised models of control, decision-making and information exchange processes in complex organisational and technical systems. Apply the mathematical tools of systems theory, control theory, information theory and operations research to the analysis of military processes. Analyse the stability, controllability, observability and operational effectiveness of military systems under conditions of uncertainty and external influence. Evaluate the effects of information flows, delays, interference and information loss on control quality. Substantiate the design principles of adaptive and intelligent military control systems. <u>Interpret theoretical analysis findings to improve the operational effectiveness, reliability and survivability of military systems.</u>
Information and Analytical Activities in Research	3,0	he ability to systematically collect, process, analyse, interpret and present information from diverse sources, using contemporary information and communication technologies and analytical methods in research activities.	Independently undertake the full information and analysis cycle: identify research information needs; locate relevant data; process, critically analyse and interpret the data; and present conclusions in an accessible form to support research. Students will be able to: Classify and distinguish between different types of information and data sources required for research. Identify and formulate research information needs and develop effective information search strategies. Apply contemporary tools and technologies to collect, organise and store large volumes of data. Use qualitative and quantitative data analysis methods to identify patterns, trends and relationships in the phenomena under investigation. Interpret analytical findings and draw well-founded conclusions aligned with the research objectives. Effectively present analytical data and conclusions in different formats, including reports, presentations and visualisations, for different audiences. Evaluate the reliability, completeness and currency of information and recognise the ethical dimensions of information and analytical activities.
Scientometrics and Research Organisation	3,0	The ability to systematically analyse and evaluate research activities using scientometric indicators and to effectively manage and organise research projects and initiatives within the contemporary research and higher education environment.	Apply scientometric indicators and tools to objectively evaluate research outputs, and use the principles and practices of research organisation to support effective planning, management and communication in academic and research settings. Students will be able to: Explain the key principles and concepts of scientometrics, including citation indices, the h-index and the impact factor. Use scientometric databases and resources, such as Web of Science, Scopus and Google Scholar, to search for, analyse and evaluate scholarly publications and researchers. Critically interpret scientometric indicators and recognise their limitations in assessing research quality. Distinguish between and apply the principal forms and methods of research organisation, including research planning, project management and scholarly communication. Develop and present research projects, taking account of funding and publication requirements. Organise and participate in research events, including conferences, seminars and working groups, at national and international levels. Observe ethical standards and the principles of academic integrity in research and organisational activities.
Internet Technologies in	3,0	The ability to effectively use and integrate contemporary Internet	Apply contemporary Internet technologies and effectively integrate them into the educational process of a higher military educational institution to optimise educational activities, organise remote interaction and improve teaching and learning quality.

UNCLASSIFIED

UNCLASSIFIED

the Educational Process of Higher Military Educational Institutions		technologies into the educational process of a higher military educational institution in order to improve teaching and learning quality, organise remote interaction and optimise educational management.	Students will be able to: Identify and analyse the potential and limitations of different Internet technologies for use in the educational process of higher military educational institutions. Use various online platforms and tools, including distance learning systems, videoconferencing and cloud services, to organise and deliver teaching sessions. Develop and adapt teaching materials for online formats, taking account of the specific characteristics of military education. Organise and maintain effective communication and interaction with students and colleagues in online environments. Use Internet technologies to monitor and assess students' learning achievements. Ensure information security when using Internet technologies in the educational process. Critically evaluate emerging Internet technologies and their suitability for integration into the military education system.
Applications of Artificial Intelligence Technologies in Education and Research	3,0	The ability to critically assess, effectively implement and ethically use artificial intelligence technologies to optimise the educational process, improve research effectiveness, and manage teaching and research activities.	Effectively use and critically evaluate artificial intelligence technologies to optimise teaching and learning, improve research effectiveness and support innovation in education and research while observing ethical principles. Students will be able to: Distinguish between and explain the fundamental concepts, types and operating principles of artificial intelligence technologies used in education and research. Evaluate the potential and risks of AI tools for educational tasks, including personalised learning, automated assessment and content creation, and for research tasks, including data analysis, modelling and hypothesis generation. Apply available AI tools and platforms to develop teaching materials, analyse research data, support decision-making and optimise workflows. Formulate tasks and requirements for AI systems to facilitate their integration into educational and research environments. Analyse and interpret results produced using AI technologies, taking account of their limitations and potential biases. Observe ethical principles and recognise the legal implications of using artificial intelligence in education and research, particularly in relation to data privacy, copyright and academic integrity. Anticipate and adapt to emerging trends and developments in AI technologies in the context of their implications for the future of education and research.
Modelling of System Operating Processes	3,0	The ability to develop, analyse and apply mathematical and computer models to investigate, optimise and predict the operating processes of diverse systems across different fields of knowledge.	Develop, analyse and apply models of the operating processes of diverse systems using mathematical and computational tools to conduct research effectively and optimise research processes. Students will be able to: Distinguish between and classify different types of system models, including deterministic, stochastic, discrete and continuous models, and determine the appropriateness of their application. Formulate problems involving the modelling of system operating processes and define their objectives and constraints. Develop mathematical models of systems of different types using appropriate mathematical tools, including differential equations, queueing systems and optimisation methods. Use software tools and environments for computer modelling of system operating processes. Conduct modelling experiments, analyse the results and interpret them in the context of real-world system operation. Use modelling results for optimisation, forecasting and managerial decision-making. Evaluate model adequacy and sensitivity and recognise the underlying limitations and assumptions.
Organisation of the	3,0	The ability to address complex specialised tasks and problems	Address complex specialised tasks and problems relating to the organisation of the operation and restoration of weapons and military equipment using contemporary methods and approaches; organise and manage the activities of command bodies, units

UNCLASSIFIED

UNCLASSIFIED

Operation and Restoration of Weapons and Military Equipment		relating to the organisation of the operation and restoration of weapons and military equipment. This includes organising and managing the activities of command bodies, units, personnel and relevant support assets to maintain weapons and military equipment in a constant state of combat readiness; making well-founded managerial decisions under conditions of uncertainty; and planning, organising implementation and monitoring performance.	and personnel to maintain weapons and military equipment in a constant state of combat readiness; make well-founded managerial decisions under conditions of uncertainty and limited resources; plan and organise task execution, coordinate interaction, and monitor, analyse and oversee performance, introducing subsequent adjustments and innovative approaches. Students will be able to: Apply methods for organising the operation and restoration of weapons and military equipment; approaches to managing units, resources and technical systems; procedures for managerial decision-making under conditions of uncertainty and limited resources; and mechanisms for performance oversight, monitoring and evaluation. Analyse the technical condition, readiness and effectiveness of the employment of weapons and military equipment; the performance of units and command and control systems; the risks, threats and factors affecting equipment operation and restoration; and the effectiveness of managerial decisions. Develop plans for the operation and restoration of weapons and military equipment; managerial decisions to improve combat readiness; organisational models for the functioning of units and support systems; measures to optimise resource provision and improve effectiveness; and innovative approaches and recommendations for improving the operation and restoration of weapons and military equipment.
Simulation Modelling in Applied Military Research	3,0	The ability to develop and apply simulation models to investigate and analyse applied military problems and substantiate decisions, taking account of uncertainty, risks and resource constraints.	Design, implement and use simulation models to investigate the operating processes of military systems and scenarios for their employment, analyse simulation results, and formulate well-founded conclusions to support decision-making. Students will be able to: Explain the nature of simulation modelling, its role in applied military research and its differences from analytical methods. Classify types of simulation models, including discrete-event, agent-based, system dynamics and determine their suitability for specific military problems. Formulate simulation modelling problems and define research objectives, effectiveness criteria and constraints. Develop conceptual and formalised models of combat operations, logistics support, unit command and control, and information exchange. Implement simulation models using specialised software environments and programming languages. Organise and conduct series of computational experiments, design scenarios and vary model parameters. Perform statistical processing of simulation results and evaluate their reliability, sensitivity and robustness. Interpret simulation experiment results to evaluate the effectiveness of alternative options for employing forces and assets. Substantiate recommendations for optimising structures, control algorithms and resource provision on the basis of simulation modelling results.
Analysis and Evaluation of Military Command and Control Effectiveness	3,0	The ability to analyse military command and control processes, evaluate their effectiveness using a system of quantitative and qualitative indicators, and substantiate recommendations for improving the quality of command decisions under conditions of	Conduct a comprehensive analysis of military command and control systems and processes; define indicators and criteria for their effectiveness; and apply evaluation methods to substantiate command decisions and improve the performance of command bodies. Students will be able to: Understand the nature, structure and functions of military command and control systems at different hierarchical levels. Define a system of indicators and criteria for evaluating command and control effectiveness, including timeliness, soundness, resilience, coherence and achievement of objectives. Formulate problems involving the analysis of command and control effectiveness, taking account of operational objectives, available resources and time constraints.

UNCLASSIFIED

UNCLASSIFIED

		uncertainty, risk and limited resources.	Apply systems analysis, expert assessment, multicriteria decision-making and operations research methods to evaluate the quality of command and control. Analyse the effects of information support and data completeness and reliability on decision-making effectiveness. Evaluate the quality of command decisions under conditions of uncertainty, risk and adversarial interference. Identify bottlenecks in the organisation of command and control processes, determine the causes of reduced effectiveness and substantiate measures to address them. Compare alternative command decisions using a selected set of criteria. Interpret analytical findings to prepare practical recommendations for improving the performance of military command bodies and enhancing decision-making processes.
Teaching Methodology Expertise of Academic Staff in Higher Military Educational Institutions	3,0	The ability to design, organise and deliver the educational process in higher military educational institutions using contemporary methodological approaches, ensuring its effectiveness, quality and compliance with regulatory requirements.	Develop teaching and methodological resources, plan and deliver different types of teaching sessions, apply contemporary educational technologies, and assess learning outcomes to improve the quality of the educational process. Upon completion of the course, students will be able to independently design, organise and deliver different types of teaching sessions in a higher military educational institution; develop teaching and methodological resources; apply contemporary educational and information technologies; objectively assess learning outcomes; and improve the educational process on the basis of an analysis of its effectiveness. Students will be able to: Recall the requirements of governing documents concerning the organisation of the educational process. Identify types of teaching sessions and their methodological characteristics. Understand and explain the principles of developing teaching and methodological resources and interpret the role of teaching expertise in improving learning quality. Apply methods for preparing and delivering teaching sessions and use contemporary educational technologies, including distance learning technologies. Analyse the effectiveness of teaching sessions and identify shortcomings in methodological support and the educational process. Evaluate the quality of teaching delivery and learning materials and justify the selection of teaching methods and formats. Develop teaching and methodological materials, including lesson plans, presentations and assignments, and design educational activities and methodological solutions.
Teaching Practicum	4,0	The Teaching Practicum programme is designed to enable students to attain all programme learning outcomes specified in the Educational and Research Programme (LO 1–13) and apply them in educational activities undertaken in academic positions. During the practicum, students deepen their knowledge of the organisation and methodological support of the educational process in higher military educational institutions. They gain practical experience in planning, delivering and analysing teaching sessions, applying contemporary educational technologies and teaching methods, and assessing educational outcomes. The practicum develops teaching expertise, communication skills, and organisational and managerial competencies. It strengthens the ability to make independent professional decisions, ensure the quality of the educational process, and integrate research achievements into teaching. Completion of the practicum deepens students’ professional preparation for teaching and prepares them to perform effectively in academic positions.	
Research Practicum	4,0	The Research Practicum programme is designed to enable students to attain all programme learning outcomes specified in the Educational and Research Programme (LO 1–13) and consolidate and deepen their practical application in professional research activities undertaken in research positions.	

UNCLASSIFIED

UNCLASSIFIED

		During the practicum, students gain experience in organising and conducting independent research; applying contemporary methodological approaches and analytical and experimental methods; processing and interpreting research findings; preparing scholarly publications; and presenting and discussing their findings within the professional research community. The practicum develops research, analytical, innovation, and project organisation competencies. It strengthens the ability to independently address complex research and practical problems, make well-founded decisions, and generate new scientific and technical ideas. Completion of the practicum deepens students' research training and prepares them for professional employment in research positions in security and defence.
--	--	--

UNCLASSIFIED