NATIONAL DEFENCE UNIVERSITY OF UKRAINE

METHODOLOGICAL RECOMMENDATIONS
on the use of NATO's systematic approach to training in the educational activities of the National Defence University of Ukraine

University Edition – 2025

UDC 378.1:355.232

Hardened
Academic Council of the National Defence University of Ukraine
(*Minutes of 23.06.2025 No. 7*)

R e v i e w e r s: *Hanna Karakurkchi* – Head of the Scientific Center for Integrity Education and Prevention of Corruption in the Security and Defence Sector, Doctor of Technical Sciences, Senior Researcher, Colonel
Vasyl Shvaluchynskyi – Deputy Head of the Institute of State Military Administration, Candidate of Military Sciences, Professor, Colonel

A u t h o r s: C o l o n e l *M. Palamar*; Colonel PhD. *E. Nevalionnyi*; Colonel, Doctor of Pedagogical Sciences, Senior Researcher. *L. Oliynyk.*

Methodological Recommendations on the Use of NATO's Systematic Approach to Training in the Educational Activities of the National Defence University of Ukraine: Methodological Manual. / Team of Authors. – Kyiv: NUOU, 2025. – 27 p.

The Methodological Manual "On the Use of NATO's Systematic Approach to Training in the Educational Activities of the National Defence University of Ukraine" was developed in the Scientific and Methodological Center for the Organisation and Implementation of Educational Activities of the National Defence University of Ukraine in accordance with the regulatory documents of the Ministry of Education and Science of Ukraine and the Ministry of Defence of Ukraine and taking into account the provisions of the Joint Directive of the NATO Strategic Commands "Education and Individual Training (E&ITD) 075-007" dated 20.03.2025. The manual identifies the main issues related to using the NATO Systems Approach to Training (SAT) in educational activities during the development and implementation of educational programs.

The methodological manual is intended for scientific and pedagogical (scientific, pedagogical) university employees.

CONTENT

ENTRY

The Guidelines describe all phases of NATO's systematic approach to training in accordance with the Joint Directive of NATO Strategic Commands "Education and Individual Training (E&ITD) 075-007" dated 20.03.2025, as a defined algorithm for the formation of educational solutions (educational programs, educational components) and show the possibilities of their use in the educational activities of the National Defence University of Ukraine. The methodological recommendations meet the requirements of the Law of Ukraine "On Higher Education", the Regulation on Higher Military Educational Institutions, approved by the Resolution of the Cabinet of Ministers of Ukraine dated 12.05.2021 No. 467, the Regulation on the Peculiarities of the Organisation of the Educational Process in Higher Military Educational Institutions of the Ministry of Defence of Ukraine, Military Educational Units of Higher Education Institutions, Institutions of Professional Pre-Higher Military Education, approved by the Order of the Ministry of Defence of Ukraine dated 15.02.2024 No. 120.

In addition, during the development of recommendations, the peculiarities of the organisation of the educational process at the university within the formal and non-formal education framework were considered.

The methodological recommendations will be helpful for scientific and pedagogical workers involved in the organisation and implementation of educational activities, and those included in the groups for providing educational programs.

CHAPTER 1
GENERAL PROVISIONS
NATO SYSTEMS APPROACH TO TRAINING (SAT)

In the list of measures for the implementation of the Concept for the Transformation of Military Education in the 2022 edition, one of the tasks is defined as "achieving interoperability of the structure of professional military education for the training of military specialists of the Armed Forces and other components of the defence forces with the relevant structures of NATO member states." This task is implemented through the implementation of the provisions of the NATO Joint Strategic Command Directive (BI-SCD) 075-007 "Education and Individual Training" (hereinafter referred to as the BI-SCD 075-007 Directive) in the educational activities of military educational institutions.

According to the experience of NATO educational institutions, the National Defence University of Ukraine (hereinafter referred to as the National Defence University of Ukraine) has developed and is constantly improving the system of professional military education, which is based on the continuity of the educational process and is built on the basic principle of "education throughout the career". The system of professional military education (hereinafter referred to as the Air Defence) of the National Educational Institution of Ukraine is unique for the military education system of Ukraine, it includes:

strategic leadership course for civil servants and senior management personnel of the security and defence sector structures – SLC (Strategic Leadership Course);

Senior Level Strategic Management and Public Policy Course – L-5;

senior management course at the strategic level – L-4;

Joint Staff Officer Course at the operational level – L-3.

In particular, the NUOU developed, synchronized with the educational programs of NATO educational institutions, command and staff courses of the tactical level L-2 by types and branches of troops (forces), which in May 2024 were transferred to specific universities. The NUOU provides advisory assistance and support for these professional military education courses.

The educational programs of professional military education courses are integrated into the educational programs of the first (bachelor's) and second (master's) levels of higher education at the tactical, operational and strategic levels, respectively.

That is why the main provisions of the NATO Systematic Approach to Training (hereinafter referred to as the SAT), as an iterative and interactive sequence of actions, starting from the identification of needs for education and individual training and ending with the identification, development and implementation of practical and effective educational solutions (educational programs) to meet these needs, are widely used in the educational activities of NGOs during the development and implementation of new educational programs in the educational process.

The SAT assumes the presence of five phases and contains a feedback loop at the end of each phase, as shown in Fig. 1.1.

The SAT is based on the model of designing training systems, better known as "ADDIE". This model was developed in the 70s by Florida State University for the US Army when solving issues of interdepartmental training.

Different versions of "ADDIE" are used to develop training programs in most national training systems of NATO countries.

SAT is often synonymous with the "ADDIE" model, which is an abbreviation for the 5 phases:

analysis – analysis;

Design – design;

Development – Development;

implementation – implementation;
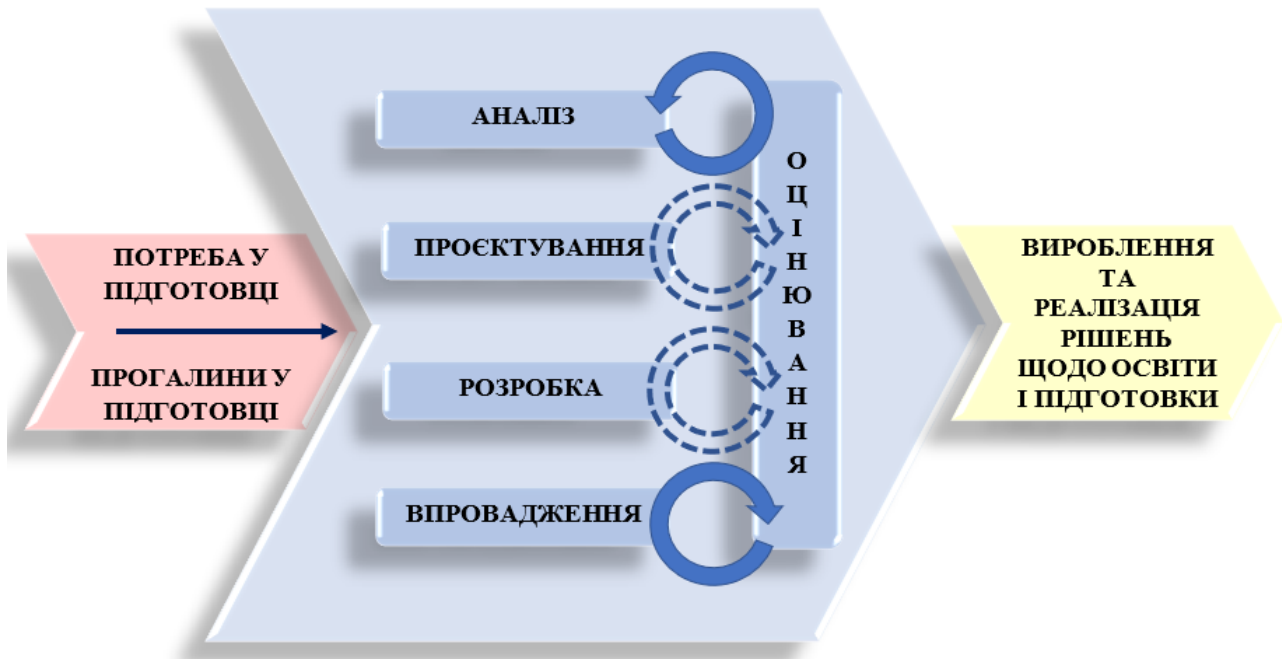
Evaluation.

Fig. 1.1   NATO's systematic approach to training (based on   Directive Bi-SCD 075-007 "Education and Individual Training" of 20 March 2025)

Analysis phase. The analysis phase aims to determine the results of NATO's education and individual training on the principle of "Over and Above" in terms of performance requirements. Its purpose is to develop clear and precise training objectives. Training objectives consider the planned outcome of the main activities in the workplace. The purpose of NATO education and individual training is to meet key requirements for performing duties, NATO operations and performance requirements arising from the Supreme Allied Commander Europe's Guidance on Education, Training, Training and Evaluation. The analysis phase culminates in creating the Level I Course Guidance Document and preparing the Level II Course Guidance Document, which outlines the broad preparation strategy and intentions for the proposed Education and Individual Training Solution.

Design phase. The purpose of the design phase is to examine each performance requirement and tasks that are considered to require education and individual training from the analysis phase to identify relevant competencies (skills, knowledge and attitudes), which will lead to the creation or selection of an existing education and individual training solution that will enable individuals to achieve the defined performance goals. The design phase aims to develop clear education/training

objectives (intermediate / training goals) to support relevant performance goals. The design phase results in the preparation of a level III course guidance document that details the learning strategy that supports education and individual training decisions. The teaching strategy includes what content and how it will be taught, and how learning will be monitored and evaluated.

Development phase. The purpose of the development phase is to provide effective teaching materials that will preserve the project's design and prepare the teaching program for implementation. Its purpose is to produce or otherwise procure the materials or services necessary to implement the education and individual training decision, which are defined in the design phase and described in the course guidance documents.

Implementation phase. The purpose of the implementation phase is twofold: to guide teachers (instructors) and to provide the necessary education and individual training. Therefore, it is necessary to put into effect the managerial, support and administrative functions necessary to successfully implement the education and individual training decisions. Implementation is training qualified graduates ready for employment in the NATO military command structure/NATO force structure.

Evaluation phase. The purpose of the evaluation phase is to collect data and assess the effectiveness and cost-effectiveness of the education and individual training solution once it has been implemented and to ensure that teaching meets the intended objectives. The evaluation phase formally closes the feedback loop of NATO's systems approach to training. It determines whether a specific education and individual training solution meets performance objectives, which were defined in the analysis phase and recorded in the guidance document of the level II course. The purpose of the assessment phase is to improve decisions on education and individual training, and to contribute to the theme of the annual conference on education and training. Education and training facilities that are institutionally accredited by the Multi-Domain Force Development Office at Supreme Allied Commander Transformation Headquarters implement a continuous improvement process, including post-course and institutional review as part of the quality management system. Assessments, carried out regularly and as needed, support the guiding principle of continuous improvement.

CHAPTER 2
BASIC RECOMMENDATIONS FOR USING THE SAT
IN EDUCATIONAL ACTIVITIES

While NATO's systematic approach to preparation is carried out through the sequential implementation of several activities, it is essential to note that this process is iterative. During each phase, the key results of the previous phase are reviewed to ensure their continued accuracy and relevance. If appropriate, requests for changes should be accompanied by allocating personnel for implementation. Within each step, an iterative approach may also be applied to confirm or rethink the solution's content and/or accuracy. This process is not necessarily linear and should not be followed. In many cases, it may be advisable to carry out phases or activities simultaneously.

2.1 Analysis phase

The analysis phase aims to create clear and precise learning objectives. Learning objectives show the required level of qualification and program competencies that must be achieved during the educational process.

The analysis phase involves the study and interpretation of input data to determine, select and organise the requirements for competencies and the main tasks of the educational process.

During the analysis phase, it should be determined:

The primary goal of the educational program.

Target audience of the educational program (who needs to be taught).

Basic program competencies to be achieved and under what conditions. Expected result.

The overall result of the analysis phase.

After the completion of the analysis phase, the external stakeholders of the educational program should be finally determined, and the profile of the educational program, the main components of the educational program and the correspondence of program competencies and learning outcomes to the components of the educational program should be worked out.

During the analysis phase, the following steps are performed:

Step 1 – create a working group.

Step 2 – analysis of the requirements for the competencies of graduates.

Step 3 – developing learning goals.

Step 4 – clarifying the target audience.

Step 5 – formulation of guidelines.

Step 6 – documenting the results.

Step 1: create a work group

The working group is usually formed among the representatives of customers for training and representatives of the educational institution that will carry out educational activities.

The working group is responsible for executing the analysis phase.

During step 1, the team will perform the following three substeps:

Substep 1.1 – approval of the target audience, which includes determining the levels of ranks and positions, those who should receive education (training), as well as typical positions that they should hold after receiving education:

which typical positions should be held by persons planned for training;

what is the expected level of education and experience of persons planned for training;

whether there is a planned target audience from a similar type of troops, type of service or area of specialization;

what are the expectations of customers regarding the level of preparation of graduates during the performance of their official duties in positions;

what level of independence is expected during the performance of official duties by graduates after training;

frequency of training (how many iterations of the course in a certain period of time).

Substep 1.2 – Confirmation of the accuracy of the formulation of the requirements of the defined activity.

The working group should consider the formulation of the requirements of the defined activity, representing the position's primary responsibilities, which should reflect the full need for its fulfilment in accordance with the defined target audience;

Substep 1.3 – Documenting the formulation of the requirements of the defined activity.

Step 2: analysis of the requirements for the competencies of graduates.

During step 2, graduates' competencies requirements are studied and systematised to accurately reflect their ability to perform duties in the designated positions after training.

This analysis provides a structured and coherent scheme for formulating requirements for a defined activity, which includes specific activities, sub-activities, and supporting elements. It is possible to add additional wording of the requirements of the defined activity (and break them down into separate tasks) to continue to provide clarity and show any dependence.

The analysis of the requirements for the competencies of graduates consists of the following sub-steps:

decomposition of the formulation of requirements for the main competence of a graduate for types of activities;

selection of the main activities;

structuring activities.

Step 3: developing learning objectives.

Educational goals are a combination of related activities or requirements for the position, formulated in the form of program competencies, which clearly define what exactly a graduate should be able to perform within the framework of official activities after training.

Once the formulation of the requirements of the defined activity and any formulations of the tasks are clarified, structured and ordered, including additional tasks, subtasks and other supporting elements (or individual actions), they are logically grouped and combined into learning objectives. The learning objective often represents a broad scope of responsibilities and includes a precise formulation of competence reflecting this consolidation. In addition, the training objective contains the conditions under which the activity must be carried out and a standard that determines the level of preparedness expected to be achieved. Not all performance requirements, tasks, subtasks and task elements defined in the previous stage will necessarily be included in the training goals. However, they can be helpful in the formulation of performance conditions and standards. Specific program competencies can already be defined in the available documentation. Learning objectives become the basis for an agreement between the customer and the contractor regarding a particular result achieved through the educational program.

Step 4: Clarify the target audience

This step provides an opportunity to check the quality and confirm the target audience, as in step 1.

At this stage, the goal is to ensure the correct definition of the levels of ranks and positions, those who must receive education (training), as well as the typical positions that they should occupy after receiving education, and the correspondence of the wording of the requirements of the defined activity to the level of professional qualification.

Step 5: Formulate guidelines

Having a clear idea of what result (or consequences) is expected to be achieved as a result of the implementation of the educational program, as well as the target audience, additional guidelines can be provided for further activities in the design phase.

The working group will consider options for conducting educational activities and provide a preliminary assessment of how the requirement for the implementation of the educational program is likely to be addressed. At the end of this step, the working group completes the development of an option for the implementation of the educational program, namely:

the required educational environment;

structure (if the program consists of several parts)

maximum number of students.

When developing guidelines, the working group analyzes training options.

These include:

determination of a cost-effective solution that will ensure the achievement of the goal of implementing the educational program;

determination of proposed and optimal methods and forms of teaching;

definition of the educational environment (classroom, remote, mixed, field conditions, etc.);

assessment of the duration of training;

evaluation of the necessary resources;

Assessment of the annual graduation of students.

Other issues.

Step 6: Document the results

This step is used to record the results of the analysis phase. The result of the work is the elaborated control document of the Level I course and the main issues of the Control Document of the Level II course in accordance with the Joint Directive of the NATO Strategic Commands "Education and Individual Training (E&ITD) 075-007".

In the national education system, the analysis phase results in individual sections of the educational program.

2.2 Design phase

The design phase aims to form clear intermediate learning objectives, including relevant competencies (knowledge, skills and attitudes) to enable individuals to achieve the specific learning objectives identified during the analysis phase.

During the design phase, a guidance document for the level III course will be developed (an educational program will be formed).

Based on the results of the design phase, a learning strategy is formed, which includes the educational material to be taught, forms and methods of teaching, and, most importantly, monitoring and evaluation methods. In particular, these three aspects of the learning strategy are related to the learning outcomes the student must achieve and the criteria for evaluating those learning outcomes.

The educational institution develops the guiding document for the level III course (educational program) and relies on the support, creativity, and experience of the development team (educational program support group). The development team consists of scientific and pedagogical (scientific, pedagogical) staff (including the guarantor of the educational program), an external primary responsibility officer of the course, if appointed, and other experts on the relevant subject of educational materials, as well as, if available, a specialist in the development of training programs to complete the stage of determining NATO's systematic approach to training.

The final structure of the content, as well as the choice of forms and teaching methods, is significantly influenced by the views of the development team, including the beliefs about the teaching and learning of individuals.

The following actions are carried out during the design phase, which logically continue the six steps started during the analysis phase. While concrete steps seem mandatory, NATO's systematic approach to preparation is flexible and adaptive. The design aims to reproduce the real working conditions in the learning environment as accurately as possible. The process described below is a logical and systematic means for the formation of a guiding document for the level III course (educational program in terms of educational components or topics of classes):

Step 7 – determining the characteristics of the learners;

Step 8 – development of intermediate learning goals;

Step 9 – determining the assessment plan;

Step 10 – documenting the program of classes.

Step 7: determining the characteristics of the learners.

For an educational program to be practical and effective, it must be based on what potential students already know and provide meaningful and motivating learning. This step returns to the target audience identified in the previous analysis phase; however,

the focus is now on how the general characteristics of the target audience can affect learning. Factors such as the size and location of the target audience can influence the decision on how the educational program will be implemented. But, usually, the focus is on the following three areas:

Competence in the subject area. Analysis of current competence in the subject area helps to determine the initial level of training. It also allows you to identify potential previous experience and previous/necessary knowledge of learners that can be used during education.

Desired preparation strategy (educational program implementation option). Data on the target audience obtained during the analysis phase and demographic data, including the location of potential students, may influence the choice of environment and form of teaching, the use of computers and online learning opportunities.

Motivation, attitude and inclination of students. These characteristics can influence the choice of teaching strategies. The answers to the following questions will affect whether a more direct or controlled approach is needed:

what is the level of motivation of students;

whether the training is necessary (a mandatory course according to the description of the position's activities) and whether it has a direct impact on the performance of official duties;

what is the general attitude to learning;

whether the target audience has common interests;

what is the level of their language abilities (if necessary).

Step 8: Develop intermediate learning objectives.

The educational analysis aims to determine everything the student must study and do to achieve the main program competencies. The focus is on the learner rather than the one who teaches.

Substep 8.1 – application of the characteristics of the learners.

When all components of learning objectives are defined, the characteristics of potential students are applied. The purpose is to identify the main educational content that students must study, practice and evaluate to achieve the objectives identified during the analysis phase, which will eventually become the content of the educational program.

To ensure the achievement of the desired results in the design and development of the educational program, the principle of student-centrism should be applied whenever possible. Teachers should teach in a way that considers students' life experiences and allows them to take responsibility for their own learning. In this way, learners are motivated to learn and become independent and "flexible". Student-centred education will enable students to participate actively in the educational process and not passively perceive teaching. In particular, active teaching methods should be used that allow students to learn from each other and from their own mistakes. Student-centredness generally promotes deeper, meaningful and memorable learning rather than superficial learning that is easily forgotten.

Substep 8.2 – conducting an analysis of learning objectives

The analysis begins with studying learning objectives to identify all the components and subcomponents of the tasks that make up the objectives, including supporting knowledge, skills and attitudes. The goal is to determine everything that the

student must learn. The most effective means of breaking down learning objectives into components, subcomponents, and auxiliary elements is the scalarisation process.

Learning objectives are divided into subcomponents known as intermediate learning objectives or learning units, which are optimal for their management. With this division, the development working group confirms that all components of the learning objectives are included in the scalar model of teaching analysis. Intermediate learning objectives are ordered or sequentially placed according to their relevance to learning, based on previous learning and logical transitions from one subject to another, using the most appropriate teaching strategy. Intermediate learning objectives, in turn, are divided into learning questions.

Learning objectives are checked for the necessary supporting key elements. The development team should identify key knowledge, skills, and abilities that can be gained from discussion and brainstorming and extrapolated from reference materials, including doctrines, procedural manuals, directives, learned and generalised, and personal experience. Attitudes that influence performance goals include safety and security considerations, character traits and leadership qualities (i.e., elements of judgment, ethical decision-making, and caring/caring for others).

Skills and knowledge elements are broken down into subcomponents when it is assumed that individual demonstrations (skills and attitudes) or explanations (knowledge or attitudes) will be helpful. This process of breaking down into its parts, or scalarisation, stops when the identified elements reach the level of the target audience's initial abilities (basic knowledge, skills, and attitudes). Knowledge, skills and attitudes become integral to the intermediate learning goal and occupation (classes) (Fig. 2.1).

The analysis is completed after identifying the main points (i.e. training issues) related to the auxiliary (favourable) elements. Educational questions are individual steps, facts or concepts that require a separate demonstration or explanation.
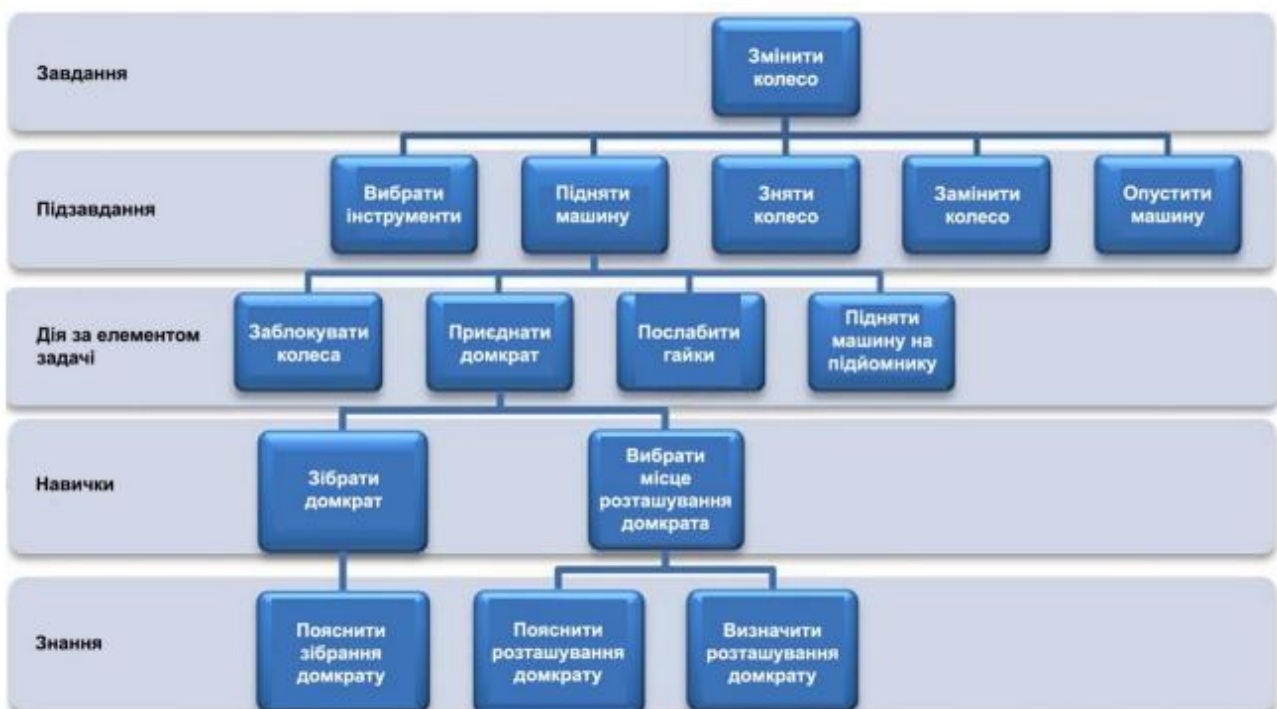
Rice. 2.1 Simplified Example of Learning Objective Analysis (based on Bi-SCD Directive 075-007 "Education and Individual Training" of 20 March 2025)

Substep 8.3 – writing an intermediate learning objective, conditions and standards.

Intermediate learning goals define the segment of teaching that is the primary step to achieve the learning goal. Intermediate learning objectives also provide a foundation for teaching; They determine what an individual will study and do and are the basis for confirming the student's progress. In addition to writing intermediate learning objectives, this step involves grouping and sequencing educational material (topics and study questions).

Intermediate learning objectives often correspond to the main components (tasks and subtasks) identified during the breakdown of learning objectives in substep 8.2; however, an intermediate learning objective can also be structured based on supporting elements of knowledge, skills and attitudes. A well-written intermediate learning objective is the basis for evaluating students and is usually the basis for deciding whether to develop an intermediate learning objective. Intermediate learning goals also determine the teaching sequence and other decisions made concerning the teaching strategy. The elements of knowledge, skills and attitudes that support the task are classified by specific topic and structured in such a way as to reflect the different levels of learning required throughout the course. For this, Bloom's taxonomy is used, which defines the supporting domains:

cognitive (knowledge) – theoretical and practical understanding of the subject necessary to perform the work. It is the information required to effectively carry out a step, task or job. This includes cognitive processing of information (storage, reproduction and interpretation) and its further application (for example, explain the format of a combat order, describe the stages of clearing a building);

psychomotor (skills) – an organised and coordinated model of mental and (or) physical activity, which is improved through repetition and practice (for example, clean a building, organise inventory, repair furniture, critical thinking, logical thinking, abstract thinking, speed of information processing, focused attention, etc.);

affective (attitude) is a thought or belief underlying or motivating behaviour. The tendency to behave in a certain way is generally considered to develop over time and is largely formed by the influence of the environment. Attitudes are made up of cognitive (belief), affective (emotional) and behavioural (action) components.

Intermediate learning goals can also be formed due to clustering related skills and knowledge components standard to one or more learning objectives. This most often occurs when it is necessary to create a base of shared knowledge or core skills that would otherwise be shared for several intermediate learning objectives. It may be required to carry out several iterations during the analysis of teaching to establish a satisfactory structure and, ultimately, to determine the educational program's intermediate learning objectives and content.

The elements of intermediate learning objectives consist of what needs to be studied to achieve the learning objectives, learning conditions (where and how the educational process will take place) and standards (deadlines for the sequence of implementation, completeness, accuracy, time and/or other qualitative characteristics).

Substep 8.4 – Development of intermediate learning goals.

nce the intermediate learning objectives have been defined, the supporting learning questions are identified, which can be grouped and organised within the intermediate learning objectives. A lesson can consist of one or more study questions. Intermediate learning objectives and learning questions guide the rest of the activities in the design phase, including identifying the activities needed to achieve the planned learning levels or learning outcomes. Educational questions reflect the learning outcomes and the main content of the educational program.

The completed intermediate learning objective defines the type of learning (e.g., skills or knowledge) and the level of education to be achieved.

Linking the learning questions becomes simple once the intermediate learning objectives are defined and organised. Intermediate learning objectives and questions should be structured into logical units and organised in a sequence to guide learning. A structural and logical scheme is formed.

A teaching strategy combines teaching methods, educational content, and the environment in which they are used. It is necessary to determine how the educational material will be presented and how to create optimal conditions for learning. The key element of high-quality design is meaningful activity, not just the educational content itself, namely:

ensuring that the learning experience is realistic, relevant and, where possible, problem-solving;

integrating opportunities for interaction, participation and active involvement in the learning process.

An example of a teaching strategy is a lecture (method) conducted by a teacher using auxiliary materials (media) in the classroom (environment). Another example is problem-solving learning in small groups, which is moderated by a teacher with support in the form of learning exercises (media) and takes place in special rooms (environments).

The choice of teaching method mainly depends on the intermediate learning objective. The grouping of educational questions and the relevance of the process to the target audience and its number also affect the teaching method.

Depending on the intermediate learning objective, giving students more control in the learning environment and creating opportunities for mutual learning may be appropriate. The target audience's characteristics determine the degree of expediency of applying a student-centred approach. The target audience's characteristics, considered at the beginning of the design phase (step 7), cover the level of subject competence and experience that can be used in teaching. The use of the knowledge of students promotes active participation, overcomes possible resistance and has a positive effect on motivation.

The choice of media occupies a vital place – these are media (means, tools or materials) used to provide sensory stimuli and input data for students necessary for learning. The right choice of media ensures that information is presented to students most effectively and cost-effectively.

Introducing technology into the educational process can make learning more interesting, interactive and practical. This includes virtual, augmented reality (AR), simulation modelling, and e-learning. Using technology, teachers can make the educational process more accessible and relevant for modern military personnel. The rapid development of AI tools means they should be integrated into the learning

environment, increasing the chance of developing individuals' abilities. Technology may even replace the teacher as a new medium of media.

The professional skill of teachers can influence the definition and selection of teaching strategies. Lack of experience with media,

teaching methods and different ways of teaching in different
environments (e.g., distance or blended learning) may
reduce the effectiveness of an intermediate learning goal or activity.

Substep 8.4.4 – Timing and references for learning questions. Based on the lesson, related learning issues and chosen teaching strategies, time should be allocated, and references (list of literature sources, regulatory framework, etc.) should be identified. References, at a minimum, should duplicate the references specified in the guidance document of the Level II course, in the part relating to the references required to complete the work. Defined during the creation of the course in the guidance document of the Level II course, it is not necessarily the main factor determining the actual duration of the course. The teaching methods chosen, professional skill levels, and depth of knowledge significantly impact the time it takes to teach to meet the requirements of the learning objective.

Step 9: Define an Assessment Plan

Assessment measures the degree to which students can complete assigned tasks and have acquired the necessary knowledge, skills, and attitudes during the educational process. The assessment plan defines a student assessment strategy based on programmed learning outcomes and academic performance.

The assessment plan determines how the achievement of the learning goal and learning outcomes will be evaluated and how students' progress will be measured. The student's progress is based on an intermediate learning goal assessment. The general rules for assessing students will consider broader procedures and relevant instructions (e.g. policies on plagiarism, attendance, progress checks/appeals, and personal conduct).

The plan should include the highest possible result-oriented assessment to determine achievement. It should require the student to apply knowledge and skills and perform tasks in real working conditions in a learning environment.

While the focus should be on score-based assessment, theory tests can effectively complement practice tests. Theoretical tests are usually conducted in writing (e.g. with a short answer) and using sampling.

Step 10: documenting the program of classes.

A clear description of the teaching strategy completes the development and definition phases within the SAT. The source document should be an educational program with a clearly defined topic of educational components.

At this stage, it is also necessary to describe the target audience, indicating the main characteristics of potential students.

A final estimate of the time required to complete each intermediate learning objective, based on the methods and media chosen, and additional administration and support time must be considered in the individual course schedule/schedule. This will

ultimately determine the course duration based on needs rather than the convenience of the schedule.

The average level of professional qualification in requirements and tasks is determined based on performance and depth of knowledge.

A list of reference materials, procedural manuals, directives and documented materials for the study and synthesis of experiences, which are applied to a specific intermediate learning objective, is finally determined.

It is imperative to describe the limitations that prevent the achievement of the educational goal. These limitations often affect student assessment and result from limited resources or other limiting factors, depending on the conditions and the desired standard to be achieved. Proficiency requires experience; hence, it is reasonable to assume that some knowledge in the workplace is needed to achieve the desired performance goal standard.

A list of specific facilities, equipment and materials necessary for the successful implementation of the overall training strategy is indicated, as well as personnel (e.g. additional staff for syndication activities) required during individual events or classes.

2.3 Development phase

The purpose of the development phase is to provide adequate provision of the educational program, including training materials, and/or services necessary to support the implementation of the educational program and ultimately achieve the goals.

The development phase ends with the elaboration (procurement) of the provision of the educational program, which was determined in the design phase. Educational program assurance products are developed by education and training institutions, industry experts and/or contractors and will vary in complexity and excellence depending on the teaching strategy. Software developers should create it in such a way that it supports students' learning and complements teaching. The relevance of the real world, which is included in the training course provision, increases the learners' motivation and maximises the transfer of learning to the workflow. Products can consist of handouts for students, electronic presentations, as well as more complex programmed e-learning applications, learning devices, and simulators.

The execution of the development phase will depend on the products required and the level of expertise of the residents. The educational and training institution is responsible for developing and providing educational programs. However, customer representatives can play an essential role in this activity, taking into account their experience. They can create or advise on the development of educational program provision and verify that the content meets the intermediate learning objective.

During the development phase, seven checkpoints must be passed. Ancillary activities often co-occur, as opposed to the specific sequence of steps described in previous phases of the SAT. The development phase/may end with testing.

Below are the main steps that need to be worked out in the development phase:

Step 11 – Review the topic of the educational program.

Step 12 – Identifying Needs.

Step 13 – Preparation/purchase of educational content.

Step 14 – Preparation/procurement of assessment tools.

Step 15 – Developing an optimal schedule/schedule.

Step 16 – Training of the teaching/instructor staff.

Step 17 - Conducting tests

Step 11: review the topic of the educational program.

Before deciding to develop or purchase educational content, it is necessary to carefully analyse the previous phases' results. The program's guidance will include teaching strategies, projected annual student throughput, an assessment plan, and resource and lesson requirements.

Step 12: Identifying Needs.

Each intermediate learning goal of the educational program identifies the resources needed for teaching. Resources may need to be expanded based on omissions, the maximum number of students per course, or assessment-related supplies. Resources can be divided into the following categories: consumables and non-consumables, as well as infrastructure facilities.

Consumables must be replaced at each iteration of the course (handouts, booklets, assessment templates, topographic maps, etc.). The number should be tracked to ensure the teacher and all students receive an appropriate allocation in each iteration.

Non-consumables. Non-consumable materials can be reused from iteration to iteration (office equipment, software, laboratory equipment, etc.).

Infrastructure facilities. Infrastructure facilities (educational, material, and technical base) must be defined in the development phase. It should be noted that some facilities require additional personnel to work with specialised equipment. In addition, based on the classification of the courses, specialised physical spaces may be required.

Step 13: preparation/purchase of educational content.

Teaching materials. As part of the Education Program Assurance Package, teaching materials for full-time learning include lesson plans, learning aids (including real-world equipment), and other resources needed to guide and support learning. The materials also include links and potential work aids, templates, and checklists that, in addition to supporting the delivery of education and individualised training, will facilitate the transfer of learning to the workplace. Relevant materials may be procured, existing or available from alternative sources, including other educational and training institutions. However, most often, to fully develop a solution for education and individual training, you must make significant efforts. Except for the purchase of basic equipment, training devices and simulators, the primary materials to be developed usually include:

manuals and handouts for students. These are reference books and auxiliary materials that students use and keep for themselves, ideally in electronic format. The content may vary, but the goal is to support and encourage learning;

Methodological materials for the teacher. These are procedures and specific instructions for teachers/NCE and course directors when planning, preparing, and conducting educational activities. A teacher guideline may also include instructions for individual learning activities and lessons, emphasising teaching coordination and potentially key learning issues. If necessary, guidelines for guest speakers/lecturers can be included to ensure proper coordination and achievement of the objectives of a particular event. The instruction for the teacher aims to provide the final coordination instructions necessary for planning, preparing, delivering and completing the course.

However, duplication of existing procedures should be avoided. Guidance for educators is even more critical for e-learning solutions. The use of electronic formats provides greater flexibility and adaptability.

framework lesson plans (methodological developments and lesson plans). Lesson framework plans are standardised, non-personalised lesson plans typically used for all course iterations to provide detailed guidance and necessary supporting materials (e.g., e-presentations) to minimise preparation time for instructors. An education and training institution may allow teachers to create individual lesson plans.

Supplementary materials for students are optional materials that can be developed and used, regardless of whether they are available in electronic or paper form. They must support the intermediate learning objectives if they are used during the course.

Many factors influence the development of teaching media and materials. Across media, the importance of the following factors may vary: personnel, time, funding, equipment, and facilities. The developers of the educational program decide whether to use the media and materials in the form they are, make modifications/changes, or buy or create new ones. Some materials you wish to use may be protected by copyright, such as reference books and videos. Permission to use must be obtained from the owner/holder. If the material is provided, ensure it is referenced in the lesson outlines. Media, whether produced or acquired, provides standardised content presentation and learning. For media production, existing video studios are used, which allow you to create educational content using a wide range of means.

Regardless of whether the documentation for the provision of an educational program within the framework of an educational and training institution is developed (produced) or purchased (purchased on a commercial basis or under a contract), it must be designed in accordance with the direction/content of the educational goal.

Step 14: Preparation/purchase of assessment tools.

The assessment plan developed during the design phase identifies the assessment tools that must be created. The primary purpose of the assessment is to determine whether the learning objectives have been achieved. Assessment also gives an idea of the student's progress. Forms of assessment are often called formative and final assessments:

Formative assessment assesses students' progress, difficulties and educational gaps during learning, knowledge transfer, and measures the effectiveness of education.

Final assessment is an assessment at the end of teaching an educational component or program.

Diagnostic (incoming) assessment is a form of assessment carried out before teaching an educational program.

In more detail, the forms and tools of assessment and the procedure for their development/procurement are set out in the regulatory documents (regulations, methodological recommendations) on the organisation and implementation of educational activities and training in the educational institution.

Step 15: Develop an optimal schedule/schedule.

After carrying out the activities of the previous steps, the content of the educational program can be streamlined or planned so that it is implemented correctly to optimise both the acquisition and retention of knowledge, skills and attitudes. As a

result, an optimal schedule/schedule (structural and logical scheme) is developed. Schedules must also take into account administrative issues. A basic schedule is also created that details the structure of the educational program (educational components), including class times, titles, venues, and teaching staff. It can be specified depending on the teacher, the availability of premises and resources, and other factors. Specialised software products can be used to create and manage the schedule.

Step 16: Training the teaching/instructor staff.

Faculty/instructor training is about organisational readiness and is one of the essential steps to prepare for implementation. Staff should generally be familiar with the necessary coordination and administrative procedures. At the same time, teachers should be able to carry out educational activities effectively, whether full-time in an educational and training institution, online or combined, once they have been developed. While a teacher's competence often depends on their individual skill level and experience, formalising a teacher's development plan closes the gap in readiness and creates the conditions for success.

Teacher training is part of a broader system of teacher and staff development. This process is initiated every time new employees join the educational and training institution. For the teaching staff, it is a continuous process throughout the entire period of work, and three main elements support this process:

initial orientation;

initial development of skills (school of a young teacher);

advanced training and exchange of experience.

To teach a specific topic of the educational program, the educational and training institution may invite external speakers, including representatives of customers.

Step 17: Conducting tests.

Tests, including pilot iterations of the course, are conducted to test what works and identify development flaws and other flaws or problems with planned teaching so that changes and improvements can be made. The tests will also help clarify resource needs and the time required for teaching. Tests consist of repetitive development cycles, testing, and refinement until the educational program is proven effective. As the trials continue, the necessary changes are made until the educational program is completed and ready for implementation. The level and number of reviews will depend on several factors, including:

complexity of teaching/provision;

an error caused by insufficient or incorrect teaching;

the urgency of preparing graduates with the necessary knowledge, skills, and attitude to complete tasks.

2.4 Implementation phase

The purpose of the implementation phase is to put into effect the managerial, support and administrative functions necessary for the successful implementation of the educational program per the educational objective/intermediate learning objectives.

The result of the implementation phase is the graduation of qualified specialists.

The implementation phase covers four key activities: planning, preparation, execution, and the final activities that support the educational program. Before carrying

out the educational process, the educational program must be integrated into the educational activities of the educational and training institution, which is reflected in the overall quality management system.

During the implementation phase, the following steps are carried out:

Step 18 – integration of the educational program;

Step 19 – initiating updating the relevant descriptions of the activities of the peacetime staffing list/staffing list for the period of the crisis;

Step 20 – organisation and implementation of educational activities.

Step 18: Integration of the educational program.

The specific educational program integration procedures will differ in different educational and training institutions and will be determined by internal regulatory documents. It should harmonise managerial, administrative, and support functions with the common main task: graduating qualified specialists.

Management, including personnel management, resources and general management, refers to the practice of directing and controlling all processes that affect the activities of an educational and training institution. This starts with a well-communicated plan for the institution, which includes a commitment to quality based on mission and vision.

The management is aimed at:

selection, supervision, motivation and development of staff and teachers in accordance with clearly defined roles and responsibilities;

cost control, budget management;

Output capacity management.

effective communication with internal and external stakeholders;

use of information systems and management of institutional knowledge;

evaluating the design and planning of the institution's future needs, infrastructure, equipment and related maintenance, as well as logistical support;

planning and implementing organisational improvement projects, including relevant initiatives to support staff and students in line with the overall mission.

identifying and solving problems and managing change with the aim of continuous improvement.

Step 19: initiating the update of the relevant descriptions of the activities of the peacetime staffing list/staffing list for the crisis period.

Implementing this step depends on the current situation/situation and the conditions in which educational activities will be organised, carried out, and regulated by the relevant regulatory framework.

Step 20: conducting educational activities.

Carrying out educational activities requires their clear organisation and consists of four stages (Fig. 2.2):

Planning;

preparation;

conducting;

Complete.

Rice. 2.2 Stages of organisation and implementation of educational activities (based on the materials of Directive Bi-SCD 075-007 "Education and individual training" of 20 March 2025)

Planning takes place after the general order of students is determined and is determined by the internal regulatory documents of the educational and training institution.

Preparation for educational activities includes:

coordination of the number of students and resolution of the central administrative issues;

completion of the preparation of educational materials (clarification and adjustments) of materials;

planning and coordination of support;

drawing up schedules/schedules;

Conducting training classes refers to the actual implementation of the educational program. Training sessions are carried out per the policies of the educational and training institution, as well as directives and special teaching methods that support the quality management system.

The completion of the training involves activities that are accompanied by the preparation of a report on the training results, summarising the impressions of the implementation and becoming an essential contribution to the evaluation phase. The report on the results of the educational program implementation, formalised criticism, is based on the observations of teachers, support staff and students and answers the question "Has the learning goal been achieved?" The report provides recommendations for maintaining best practices and areas to improve the quality of education.

2.5 Evaluation phase

The purpose of the evaluation phase is to assess the effectiveness and accessibility of the educational program and determine how best to implement it within an educational and training institution that strives for continuous improvement.

The result of the evaluation phase is the improvement of the educational program. The assessment phase results provide an idea of the correspondence between the requirements for the educational program and specific decisions to achieve the goal of the educational program.

Two different processes support the evaluation phase:

An educational program review, part of a program evaluation that evaluates the benefits or feasibility of a program, focuses on judgments relating to the achievement of specific learning goals. This is the process of collecting and analysing data from internal and external stakeholders to determine how well the educational process was carried out and how well the graduates are prepared to perform the assigned tasks.

Institutional reviews focus on the educational and training institutions and involve periodic quality management reviews.

The review of the educational program, as part of evaluation, is a structured and systematic process that involves the collection and analysis of quantitative and qualitative data to evaluate the quality (effectiveness, efficiency and accessibility) of the educational program and improve the results and consists of internal and external evaluation. Internal regulatory documents regulate the revision of the educational program.

Internal evaluation is a report based on observations, surveys, and analysis of actions carried out by educational components. This report should identify areas of the course that need improvement and an action plan to improve them. The internal assessment results may affect the need for the external evaluation.

The focus is on assessing the reaction and perception of recent training sessions. Many data sources support internal assessment; some are shown in Fig. 2.3.

Rice. 2.3 Sources of information for internal evaluation of the educational program (based on the Bi-SCD 075-007 Directive "Education and Individual Training" of 20 March 2025)

Internal evaluation may include monitoring the educational program, which may assess overall compliance with learning objectives, and include monitoring of teachers.

Internal assessment is an essential component of an effective quality management system of an educational and training institution, and, as a rule, it concerns, at a minimum, the reaction of students and their learning.

External assessment is a process carried out after graduates have managed to apply the acquired skills in a work/operational context. The period varies depending on the skills/knowledge acquired and the job context; however, it usually occurs within six months.

External evaluation of the educational program focuses on observations and feedback from practical activities. The focus is on evaluating how much what was learned during the course was transferred to the effectiveness of practical activities and achieving result.

The collected data is used to determine whether the initial requirements for the educational program have been met.

External assessment is carried out after graduates have completed their studies and have had the opportunity to apply the knowledge gained in a work/operational context. A subtle but essential nuance for practical external assessment is to avoid directly discussing graduates' experience gained in the course – such feedback is best collected during internal evaluations. The focus is on the graduate's ability to perform specific tasks.

Many data sources can be selected to support external assessment, some shown in Fig. 2.4.

Rice. 2.4 Sources of information for external evaluation of the educational program (based on the Bi-SCD 075-007 "Education and Individual Training" Directive of 20 March 2025)

One of the most common and effective methods of data collection is surveys. With the help of an external assessment survey, feedback is provided by graduates and, possibly, their commanders directly from the place of work. Effective external

evaluation data is based on performance reports generated within the performance objectives and provides feedback on relevance and application in the work context.

LITERATURE

1. Law of Ukraine on Education (as amended).

2. Law of Ukraine on Higher Education (as amended).

3. On approval of the Regulation on the peculiarities of the organisation of the educational process in higher military educational institutions of the Ministry of Defence of Ukraine, military educational units of higher education institutions, institutions of professional pre-higher military education: order of the Ministry of Defence of Ukraine dated 15 February 15 2024 No. 120.

4. Bi-strategic Command Directive 075-007 "Education and Individual Training Directive", 20 March 2025. P. 220.