

ОРГАНІЗАЦІЙНО-ПРАВОВІ ПИТАННЯ БЕЗПЕКИ ІНФОРМАЦІЇ/ ORGANIZATIONAL & LAW INFORMATION SECURITY

DOI: 10.18372/2225-5036.30.18619

APPLICATION OF THE INNOVATIVE APPROACH IN THE MODERNIZATION OF HIGHER EDUCATION INSTITUTIONS OF THE SECURITY SERVICE OF UKRAINE

**Yevhen Melenti¹, Serhii Yevseiev², Olha Korol³,
Stanislav Milevskyi⁴, Vladyslav Khvostenko⁵**

¹National academy of Security Service of Ukraine

^{2, 3, 4, 5}National Technical University "Kharkiv Polytechnic Institute", Ukraine



Yevhen MELENTI, candidate of Technical Science (PhD), associate professor
Date and place of birth: 1985, Mary, Turkmenistan.
Education: Ivan Kozhedub Kharkiv National Air Force University.
Position: director of the training center, National academy of Security Service of Ukraine.
Research interests: anti-terrorist security and protection of critical infrastructure facilities.
Publications: more than 120 scientific publications, including monographs, textbooks, articles and patents.
E-mail: melenty@ukr.net.
Orcid ID: 0000-0003-2955-2469.



Serhii YEVSEIEV, Doctor of Technical Science, Professor
Date and place of birth: 1969, Khartsyzsk, Donetsk region.
Education: Kharkov Military University, 2002.
Position: Head of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.
Scientific interests: protection of information resources, post-quantum cryptography, security in socio-cyber-physic.
Publications: more than 300 scientific publications, including monographs, textbooks, articles and patents.
E-mail: serhii.yevseiev@gmail.com.
Orcid ID: 0000-0003-1647-6444.



Olha KOROL, candidate of Technical Science, associate professor
Date and place of birth: 1981, Dzhankoy, Crimea.
Education: Kharkiv National University of Economics, 2005.
Position: associate professor of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.
Scientific interests: information protection in socio-cyberphysical systems, authentication mechanisms.
Publications: more than 140 scientific publications, including monographs, textbooks, articles and patents.
E-mail: korol.olha2016@gmail.com.
Orcid ID: 0000-0002-8733-9984.



Stanislav MILEVSKIY, candidate of economic sciences, associate professor

Date and place of birth: 1979, Murom, Volodymyr region.

Education: Kharkiv National University of Economics, 2001.

Position: associate professor of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Scientific interests: information protection in socio-cyberphysical systems.

Publications: more than 60 scientific publications, including monographs, textbooks, articles and patents.

E-mail: milevskiysv@gmail.com.

Orcid ID: 0000-0001-5087-7036.



Vladyslav KHVOSTENKO, candidate of economic sciences, associate professor

Date and place of birth: 1984, Kharkiv.

Education: L'université Lumière Lyon II, 2007; Kharkiv National University of Economics, 2006; National University "Odessa Law Academy", 2012.

Position: associate professor of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Scientific interests: information protection in socio-cyberphysical systems.

Publications: more than 90 scientific publications, including monographs, textbooks, articles and patents.

E-mail: info@atilog.ua.

Orcid ID: 0000-0002-6436-4159.

Abstract. *The security and defense forces are the main instrument of the state for countering the armed aggression of the Russian Federation and ensuring the defense of Ukraine, protecting the safety of the population and the interests of the state. Taking into account the powers assigned to the Security Service of Ukraine (SSU), in various crisis situations, the domestic special service performs tasks both as part of the security forces and as part of the defense forces, which in modern conditions requires the improvement of the system of training personnel for the SSU. In the conditions of the modernization of the educational process in the preparation of standards for the training of specialists, taking into account the experience of training military personnel of NATO member countries, the task of determining the professional competences of graduates of higher education institutions of the SSU, which will allow them to successfully perform operational and combat tasks in practical units, becomes especially appropriate. As a result of the study, the procedure for forming a state order for the training of specialists for the SSU and qualification requirements for a future employee was formalized. The modern possibilities of e-education in the formation of innovative higher education institutions are outlined. When organizing the educational activities of the SSU institution of higher education, the use of the corporate information and educational system and ways to increase the level of security of its information resources in the conditions of potential and prospective threats to cyber security are proposed.*

Keywords: *innovative institution of higher education, professional competences, information resources, stakeholders.*

Introduction

The National Security Strategy of Ukraine [1] is the main guiding document defining current threats to the national security of our country, mechanisms for protecting Ukraine's national interests, and the main measures for planning and implementing state policy in the field of national security.

The security and defense sector implements the provisions of the Strategy to protect national interests from current and prospective threats to Ukraine's national security.

Currently, it is the security and defense forces that are the main instrument of the state for countering the armed aggression of the Russian Federation and ensuring the defense of Ukraine, protecting the safety of the population and the interests of the state [2].

Of course, under such circumstances, the guarantee of the preservation of territorial integrity, state sovereignty and independence is the availability of the capabilities of the security and defense forces necessary to achieve superiority over the enemy forces and the liberation of the entire captured territory of Ukraine [3]. At the same time, the highly professional training of officer

personnel has a significant impact on the readiness of the security and defense forces to successfully counter the aggressive actions of states neighboring Ukraine.

In the system of training of the officer corps of all countries of the world, the standards of specialist training play a key role, which regulate the set of requirements for the content and expected results of training, conditions and parameters, and the sequence of working out the training material [4].

In Ukraine, the transformation of the system of higher military education has been ongoing for several years, taking into account the experience of training military specialists of NATO member countries [5].

Taking into account the positive changes (integration of professional military education into the state education system, implementation of the principle of "Education throughout a military career", approximation of the quality of higher military education to NATO standards), which have already been implemented in the educational process in higher education institutions (HEIs) of the security sector and of the Defense of Ukraine, the question of the compatibility of the training of specialists of various power structures remains open.

Literature analysis

Analysis of recent research and publications [5-9] shows that the system of military education in Ukraine is currently undergoing deep transformations. The purpose of these changes is the integration of our state into the European community, the acquisition of interoperability of troops (forces) with the armies of NATO member countries. In these works, the scientists mostly touch upon the issues of training specialists for the Armed Forces of Ukraine, the introduction of procedures and standards of the Euro-Atlantic Alliance into the educational process. Domestic researchers in their writings touch on issues related to the formation of professional competencies of specialists in the security and defense sector. In the works of domestic scientists [10-13], questions are raised regarding the acquisition of certain competencies by SSU employees and the means of their formation. However, in view of the active involvement of SSU employees in the performance of operational and combat tasks as part of the Defense Forces, the task of the State Security Ensuring Strategy [14] to increase the professional level of SSU servicemen and strengthen their combat training is updated.

Purpose and statement of the task

Taking into account modern and prospective threats to national security, the task of improving the standards of personnel training for the security and defense forces is being updated. The implementation of this task requires new approaches in the training of personnel,

which would take into account the requirements of the program documents of the security and defense sector on the integration of Ukraine into the European and Euro-Atlantic security space, the tasks of the components of the security and defense sector, the need to counter modern and new threats. Special attention in this task is given to the process of training specialists for the Security Service of Ukraine (SSU), as the main entity in the fight against terrorism and countering the intelligence and subversive activities of foreign special services.

The main part of the study

Taking into account the powers assigned to the SSU as a state body of special purpose with law enforcement functions, which ensures the state security of Ukraine [15], and the provisions of the Law of Ukraine "On National Security" [16], the SSU performs tasks as part of forces in various crisis situations security, as well as in the defense forces. So, the structure of the security and defense sector of Ukraine and its components can be depicted as follows (fig. 1).

Undoubtedly, in crisis situations, the Security Service of Ukraine is a component of the security and defense forces. Units of the domestic special service took an active part in the implementation of operational and combat tasks in the areas of hostilities as part of the anti-terrorist operation and the operation of the joint forces. Currently, SBU servicemen as part of the defense forces oppose direct military aggression under martial law.

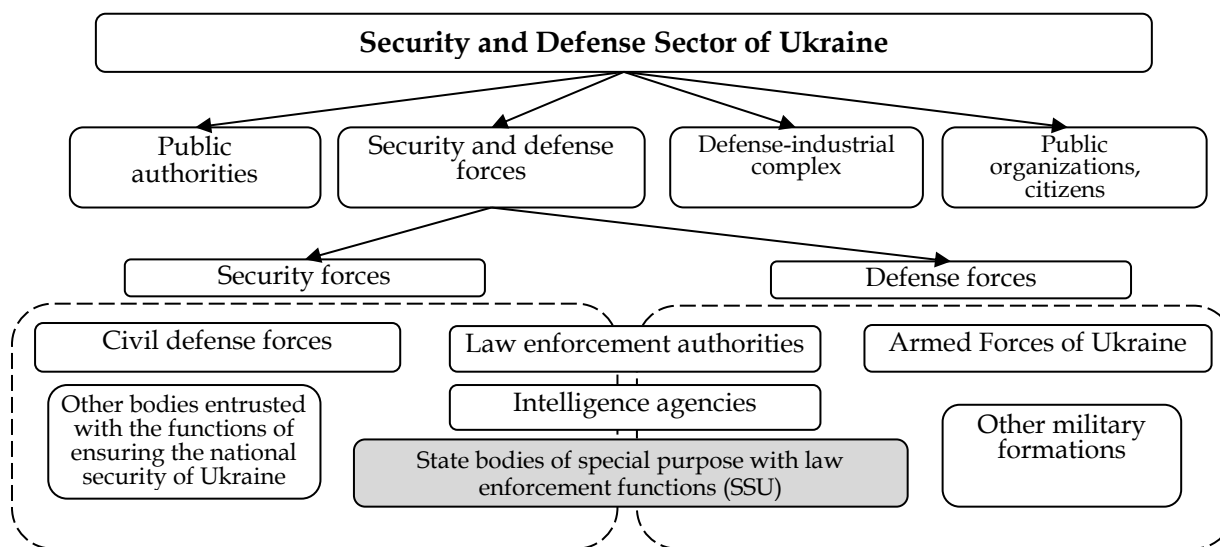


Fig. 1. The structure of the security and defense sector of Ukraine

In view of the tasks facing the SSU, in order to increase national security and defense capabilities, the modernization of the system of training, retraining and advanced training of personnel is a priority task of higher education institutions (HEIs) of the SSU.

Of course, in the conditions of the modernization of the educational process, in the preparation of standards for the training of specialists, educational and professional programs, curricula, programs of educational disciplines, the task of determining the combat military-professional competences of the graduate, the knowledge he has acquired, the skills and abilities he has acquired in the process of training, acquires special expediency, will

allow to successfully perform operational-service (operational-combat) tasks in practical units.

According to the Law on the SSU, the SSU is the main body in the national system of combating terrorist activities [1]. With the beginning of hostilities in Donbas in 2014, due to a significant increase in criminal acts with signs of a terrorist act and sabotage in the non-occupied territory of Ukraine, the Unified State System for the Prevention, Response and Termination of Terrorist Acts and Minimization of their Consequences (USSPRTTAMC) was created (figs. 2, 3).

Figure briefly shows the formalized procedure for the formation of a state order for the training of specialists

in the HEIs of the SSU. The stages of formation of qualification requirements for a future SSU employee are given (fig. 4). First of all, it is advisable to take into account the security situation in Ukraine and the world, guided by the list of current and projected threats to national and state security defined in [1, 14]. Also, the requirements of the standard of higher education in the relevant specialty

[17], the national framework of qualifications [18] and direct customers (stakeholders) are taken into account when forming the competences of the acquirer. After all, it is the customers who are extremely interested in young specialists of the appropriate level of higher education, who should be ready to independently and effectively solve official tasks after graduation.

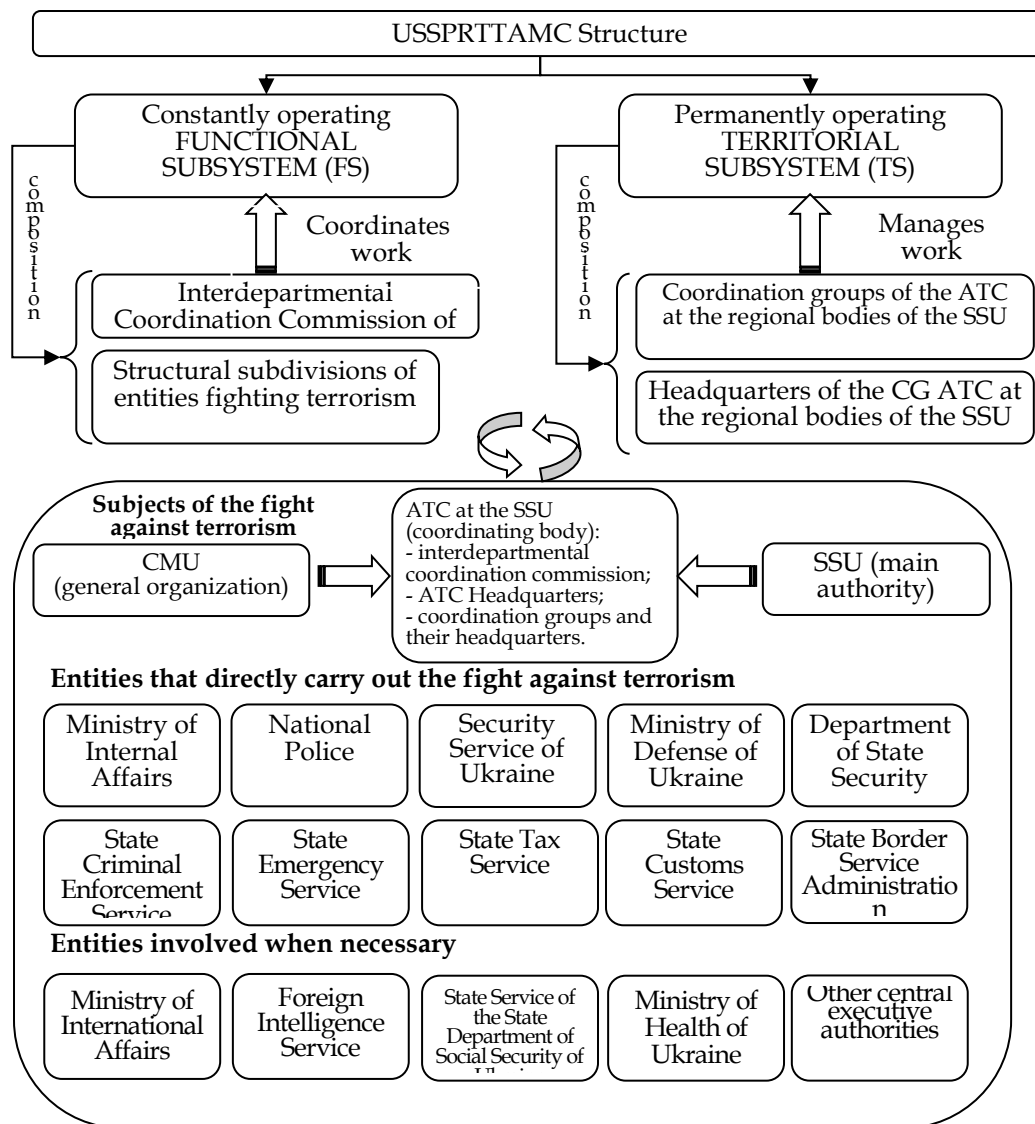


Fig. 2. Unified State System for the Prevention, Response and Termination of Terrorist Acts and Minimization of their Consequences Structure

In the process of forming the competencies of a graduate of the SSU HEI, it is necessary to understand the meaning of the concept of "competence". As defined in [17, 19], the competence of graduates is a dynamic combination of knowledge, abilities, skills, ways of thinking, views, values, and other personal qualities, which determines a person's ability to successfully socialize, conduct professional and/or further educational activities. Competences of the SSU employee can be divided into general and professional (special, subject). General competences are necessary for any type of activity, professional (special) competences are decisive for the specialty for which professional training is carried out. Thus, when preparing the list of competencies of the SSU higher education graduates, it is advisable to proceed from the conditions of further military service of the graduates and the tasks that

will be performed by young officers. In the conditions of direct military aggression against Ukraine, the requirements for training results are increased, which will allow the future employee to perform operational-combat tasks in extreme conditions, be a leader and make the right decision in a limited time in difficult operational conditions.

The experience of operational service tasks by SSU employees in the areas of hostilities shows that the key to successfully solving official tasks is a high level of professional awareness, psychological resistance to extreme conditions, physical fitness and the necessary level of combat training of servicemen, knowledge of the forms and methods of conducting combat operations actions in different conditions, the procedure for planning and carrying out special operations (special events).

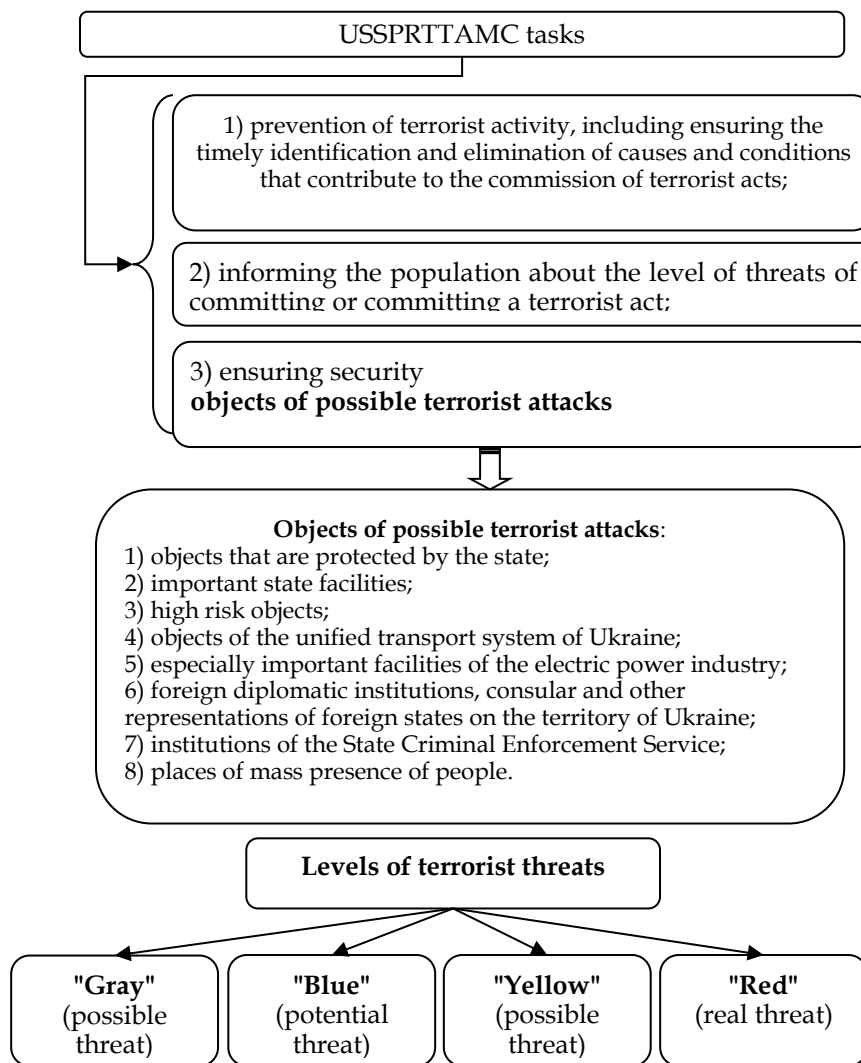


Fig. 3. Unified State System for the Prevention, Response and Termination of Terrorist Acts and Minimization of their Consequences Structure Tasks

Thus, a separate category among the list of professional competencies of a future SSU officer is occupied by military professional competencies. At the same time, a leading role in improving the quality of training of specialists for the needs of the security and defense sector of Ukraine is played by the organization of educational activities in higher education institutions. The current stage of the evolution of the world economy is characterized by radical socio-economic transformations and the transition of key innovator countries to the knowledge economy. Its main attributes are the internationalization of educational and scientific activities, technological shifts in the field of education and science, diversification of mechanisms for funding research carried out by universities, and intensifying competition between them.

Thus, the formation of professional competences is closely related not only to the transformation of the educational process, but also to the digitalization of society as a whole [20].

The new paradigm fundamentally changes the culture of responsibility and the value system of the university, which is evidenced by the spread of the management approach and the use of the principle of value for money

in higher education systems around the world. The competitiveness and relevance of the existence of higher education institutions is assessed mainly according to its contribution to the economic development of countries and humanity as a whole. In order to adapt to the new paradigm, a certain adaptation is required - adaptation of the relations of higher educational institutions with the surrounding society/main stakeholders, adaptation of its internal processes, basic values, search for new innovative foundations of its development under modern conditions [21, 22]. The figure presents the relationship between management processes and the main functions of innovative higher education institutions, taking into account the development of e-education (fig. 5). Currently, there are two different approaches to understanding the essence of an entrepreneurial, innovative active university.

The first approach interprets it as an institution that does everything possible for the development of science, the invention of new technologies and the stimulation of new markets and industries, and the entrepreneurial aspect of universities is associated exclusively with business and the commercialization of their intellectual property.

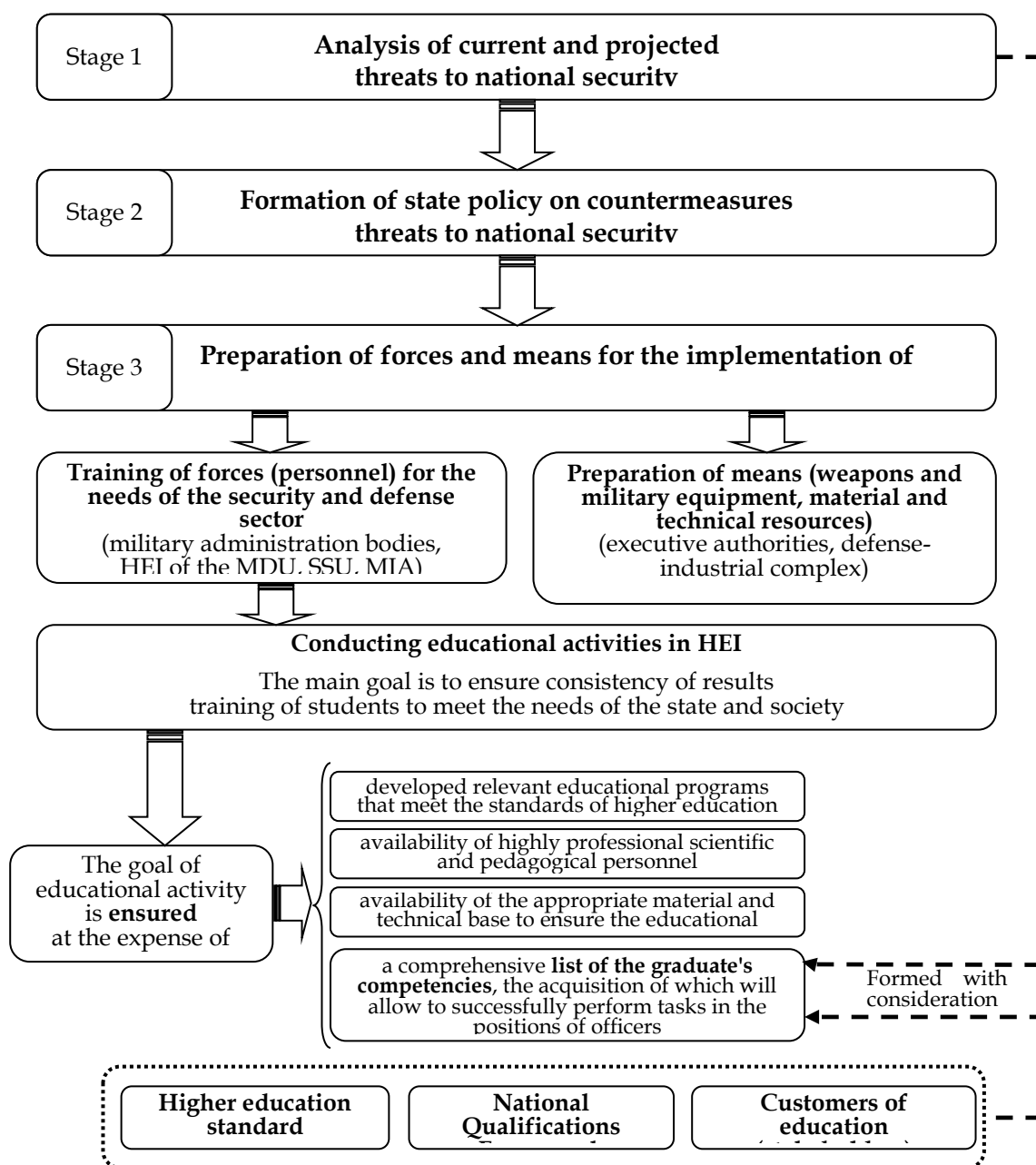


Fig. 4. The procedure for the formation of a state order for the training of specialists in the HEI of the SSU

This opinion is largely supported by the views of the international community (for example, the Organization for Economic Cooperation and Development (OECD)), which considers universities as sources of technological innovation and "engines of growth". At the same time, the number of submitted national and international patents, their citations in the development of new patents, the impact of patents, etc are considered as criteria of innovativeness of higher education institutions. The TOP-100 most innovative universities in the world are given in [23]. The second approach considers the more broadly innovative and active activity of higher education institutions as a set of new initiatives in the organization and development of leadership; experiments in pedagogy, organization of knowledge, introduction of new forms of education and development of relevant requests of business and society of academic programs; interaction of

internal and external stakeholders; interdisciplinary scientific activity related to the acquisition of new knowledge, methods and commercialization of their results. This approach is related to the concept of entrepreneurship, which focuses on two key tasks: the formation of an entrepreneurial person and the development of entrepreneurial thinking. Supporting the imperatives of the second approach, the authors understand an innovative and active HEI as an entrepreneurial organization that has resource readiness, namely, the readiness of the management system, the readiness of personnel, educational, scientific, financial, and organizational potentials, which will contribute to the accelerated development of the economy and society through the intensive transfer of new, of knowledge and technologies generated at the university based on partnership with labor market subjects, government and public organizations.

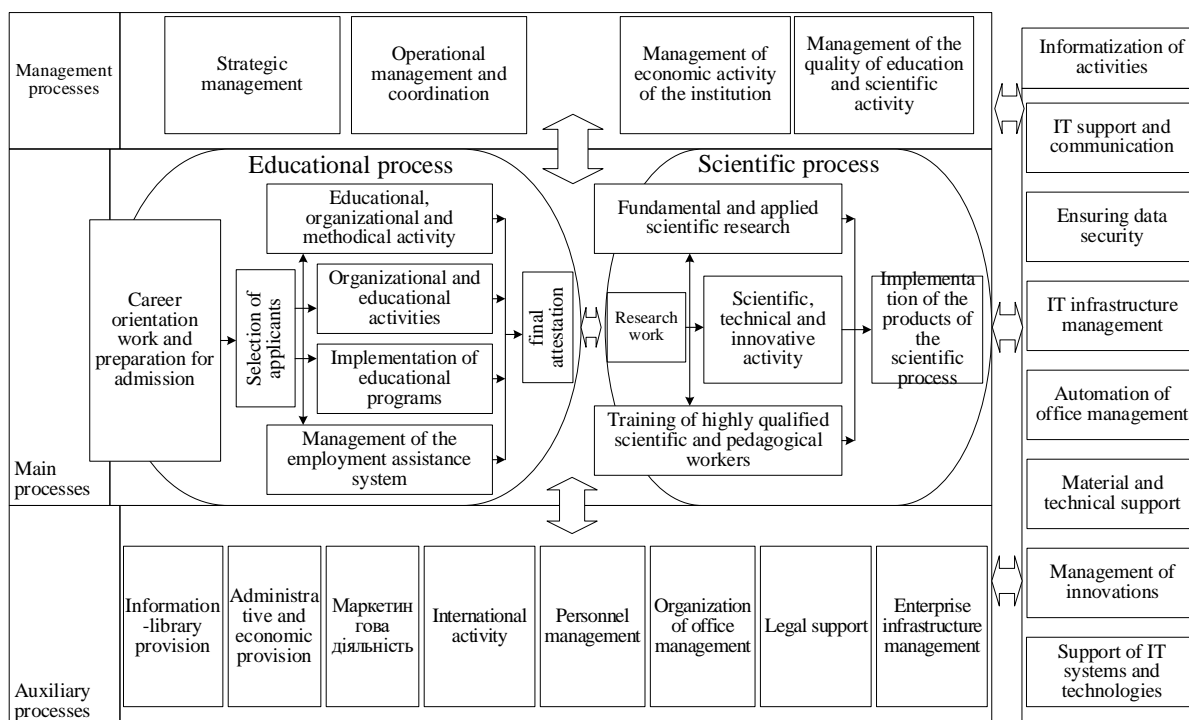


Fig. 5. Interrelationship of management processes and the main functions of innovative higher education institution

In this context, the IAM (information and analytical management) activities are dominant [23]:

- science as a tool for generating new knowledge based on integration with the external environment, primarily with high-tech enterprises;
- education as a way of bringing knowledge to people, forming the intellectual potential of society;
- interaction with industry, government, society as a means of concerted efforts to ensure the stable development of the nation and civilization.

Modern information systems and technologies act as a platform for supporting effective interaction between the HEI and stakeholders. Therefore, an inseparable (part/characteristic) part of the IAM management system is the system of corporate management of the provision of educational services, which, based on the use of modern software, creates an effective electronic document flow and is a tool for preventing corruption in higher education institutions. In addition, in the conditions of increased aggressiveness of the external information environment, modern hybrid threats, there is a need to ensure the security of information resources of the corporate information and education system (CIES) and create models and tools to support the secure circuit of the main business processes of providing educational services.

Thus, the proposed approach provides objective control by society over the educational activities of educational institutions, which contributes both to the quality of the formation of basic education services, and to the formation of competitive competences of higher education graduates.

Fig. 6 shows the structural diagram of the main subsystems of the corporate information and training system. Conducted studies have shown that almost all protocols ensure functioning in an open form. This fact significantly reduces the possibility of providing security (providing

security services) at all levels of the ISO/OSI model. CIES can be classified as a critical cybernetic system, which plays an important role not only within the Ministry of Education and Science of Ukraine, but also to a certain extent ensures the national security of the state. In addition, the analysis showed that with the development of an active innovative HEI, CIES can be considered as a synthesis of information and communication systems and cybernetic physical systems, which allows forming possible attacks from two directions of cyber-attack vectors (fig. 6). This integration is the result of advances in information and communication technology (ICT) to improve interactions with physical processes. All these definitions emphasize the constant and intensive interaction between the cyber environment and the physical world.

However, their development also determined a new direction in the transformation and modification of old threats, which is not only manifested in the possibility of hacking and unauthorized access to confidential (personal) information of users, but also in the possibility of an "energy apocalypse". Thus, in order to prevent or maintain the security contour in cyber-physical processes, to analyze deviations from normal operation and / or system hacking, a unified approach to the construction of the classification of threats is necessary, taking into account their synergy and hybridity for all security components: information security (IS), cyber security (CS) and security of information (SI), in terms of their presentation with social engineering methods and a lack of funds to ensure the necessary level of security.

In order to ensure preventive measures against the manifestation of elements of corruption based on the introduction of electronic circulation and elements of e-education in modern educational institutions, it is proposed to use PKI technologies, the basis of which is a digital signature (DS) based on the X.509 standard [24].

The security of the innovative university functioning is implemented at the following levels:

- at the strategic level - management of higher education institutions - creation of conditions for the impossibility of making corrupt changes in the governing documents on the organization of the educational process, provision of basic communal and communication services of the university's activities, students' living conditions and transparency in the provision of educational services. Ensuring effective control over the implementation of the schedule of the educational process at the university's faculties;

- at the operational level - management of institutes (faculties), departments and services involved in the system of service provision - prevention of corrupt changes in the objectivity of student evaluation during the study process, awarding of scholarships (grants, etc.). Organization of exams during the entire cycle of the educational process, creation of conditions for effective control over

the implementation of the schedule of the educational process by the faculty's specialties, prevention of corruption in departments and services of the university;

- at the tactical level - management of departments - increasing the level of objectivity of student evaluations in individual disciplines, creating conditions for students to transparently choose academic disciplines from the block of the selective component of the educational process. Formation of conditions for effective control over the implementation of the schedule of the educational process by the teachers of the departments.

The development of modern technologies significantly expands the range of services that can be used in the CIES.

This, in turn, significantly affects the ranking of the university according to the criteria of the international ranking of universities in the world Ranking Web of Universities (Webometrics). The main criteria are shown (fig. 7).

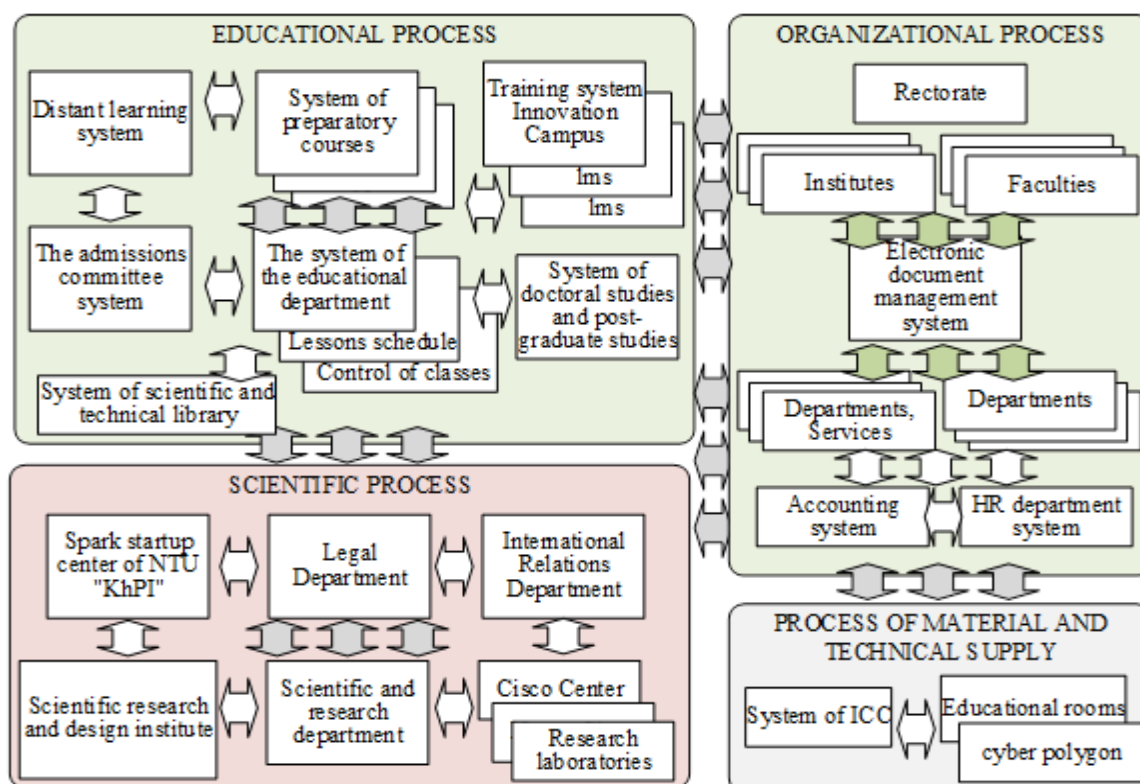


Fig. 6. Structure diagram of CIES

The analysis of fig. 7 showed that, first of all, higher education institutions need to have powerful web applications, all of which will allow covering almost all areas of the university's activities and ensure their transparency.

The second direction of increasing the relevant level indicator is the scientific achievements of the academic and teaching staff (ATS) through publications in journals (relevant international conferences) that are affiliated to the Scopus scientific-metric database. And the last direction is the promotion of ATS publications in the metric database of Google Scholar, which allows to increase the level of the scientific component of higher education.

However, to date, significant changes in the security policy of IT giants do not allow timely and objectively obtaining relevant indicators according to the criteria of the

international ranking of the world's universities Ranking Web of Universities (Webometrics). This is primarily due to the lack of a full-time unit in the Ministry of Defense of Ukraine, which ensured the reliable security of web applications, their development and implementation.

Secondly, the requirements for the creation of the AIM put forward stricter requirements for the provision of security services: confidentiality, integrity and authenticity, information resources of higher education institutions: personal data of students and ATS (EDEBO database), personal data of employees of higher education institutions, confidential information, know-how of relevant laboratories.

Thirdly, the possibility of threats to the CIES by hacking domains (subdomains) by bots/zombie-bots of developed countries and/or cybercriminals.

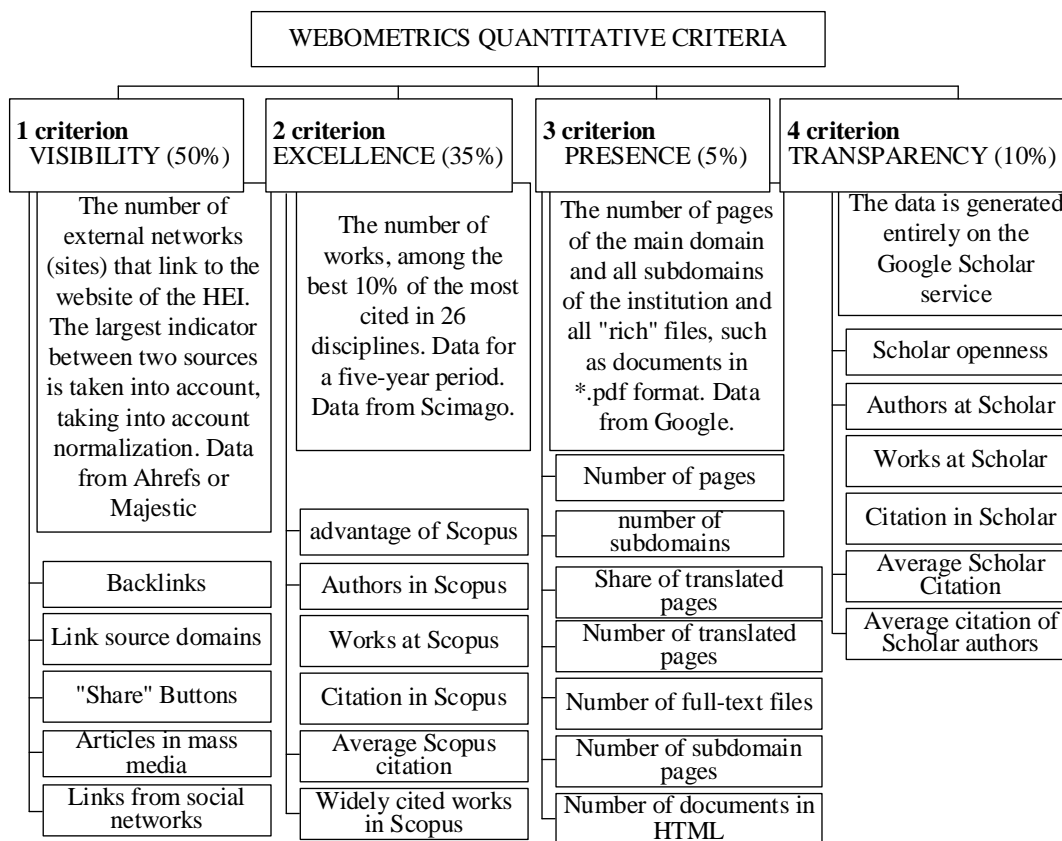


Fig. 7. Evaluation criteria of the international ranking of the world's universities Ranking Web of Universities

In order to increase the level of the first Webometrics criterion, create conditions for the automation of certain elements of document flow in the provision of educational services, and combat corruption in higher education institutions, it is proposed to create web applications "Teacher's personal account", "Student's personal account".

The main functions of the "Teacher's Personal Cabinet" web application are:

- creation of the possibility of distribution of the workload by the head of the educational department between university divisions (departments);
- creation of an opportunity to plan the distribution of the educational load by the head of the department among the staff of the department;
- automatic formation of the first half of the workload in the individual plan of the department's teachers;
- the possibility of individual planning of the AES of the department for the second "half of the day";
- the possibility of automating the formation of the department's science plan by means of individual planning of the department's AES publications;
- access to personal accounts in Scopus, Scolar, ORCID;
- accessibility to CIES resources (LMS, teacher's electronic magazine, university website, library, websites of the relevant faculty, department);
- the possibility of correcting the teacher's electronic journal through a mobile application;
- access to the governing documents of the university, Ministry of Education and Science of Ukraine.

The main functions of the "Student Personal Account" web application are:

- automatic formation of the student's individual plan;

- the possibility of choosing a selective component of the student's individual plan through the web application;
- the possibility of checking the results of training (calculation of points for educational components, points received for the exam, etc.);
- the possibility of checking the place in the group rating;
- the possibility of ordering the necessary literature through the website of the HEI library;
- accessibility to CIES resources (LMS, electronic student magazine, university website, library database, websites of the relevant faculty, leading department);
- access to the governing documents of the department, faculty, university, MES of Ukraine.

The development of these web applications makes it possible to improve the level of the university according to the first criterion of the international ranking of universities in the world Ranking Web of Universities (Webometrics), namely to create a multisite with a single database (on the university website), to ensure timely updating of relevant web application technologies, the security of their use in conditions of modern threats. Thus, the proposed directions for raising the level of higher education institutions according to the criteria of the international ranking of universities in the world Ranking Web of Universities (Webometrics) allow to objectively influence the transition of universities to the next level – an active innovative university through the implementation and use of modern web technologies and applications, increasing the level of scientific activities of professors and teaching staff (their motivation), implementation of new innovative approaches in the activities of higher education institutions.

Conclusions. The formation of professional competences of students in the SSU higher education institutions is closely related to the need to find new approaches to the creation of multi-professional components. The implementation of such approaches can be carried out on the basis of the integration of competences of various standards, both educational and professional. This approach ensures the formation of the necessary military and professional competencies in future officers of the domestic special service.

The introduction of a corporate information and educational system at the SSU HEI will make it possible to fully master and use the best technologies of society in the educational process, to deploy individual components (cyber training grounds, innovative campuses, elements of artificial intelligence, interactive learning tools), to form the skills and abilities of future employees in various fields: IT, jurisprudence, law, management of components of the security and defense sector in the event of crisis situations.

References

- [1]. On the decision of the National Security and Defense Council of Ukraine dated September 14, 2020 "On the National Security Strategy of Ukraine": Decree of the President of Ukraine dated September 14, 2020 No. 392/2020. URL: <https://www.president.gov.ua/documents/3922-020-35037> (date of access: 09/08/2022).
- [2]. On the introduction of martial law in Ukraine: Decree of the President of Ukraine dated February 24, 2022 No. 64/2022. URL: <https://www.president.gov.ua/documents/642022-41397> (date of access: 09/15/2022).
- [3]. On the approval of the Procedure for the organization and implementation of defense planning in the Ministry of Defense of Ukraine, the Armed Forces of Ukraine and other components of the defense forces: Order of the Ministry of Defense of Ukraine dated 02.12.2020 No. 484. URL: https://www.mil.gov.ua/content/mou_orders/mou_2020/484_nm.pdf (access date: 08/02/2022).
- [4]. Concept of training of the Armed Forces of Ukraine: Order of the Ministry of Defense of Ukraine dated February 22, 2016 No. 95. URL: <https://www.ukrmilitary.com/2016/02/concept-of-the-armed-forces-of-ukraine.html> (access date: 08/24/2022).
- [5]. Mosyondz O.L. Reform of special education in the security and defense sector: what changes to expect. ArmyInform. URL: <https://armyinform.com.ua/2021/02/16/reforma-speczialnoyi-osvity-v-sektori-bezpeky-taborony-yakih-zmin-ochikuvaty/> (date of access: 08.03.2022).
- [6]. Prikhodko Yu.I. Training of military specialists in the leading countries of the world. Pedagogical sciences: theory, history, innovative technologies. 2017. Vol. 67, No. 3, pp. 285-299.
- [7]. Kasianenko M.V. Analysis of the problems of professional training of citizens of Ukraine according to the reserve officer training program. Social Development and Security. 2020. Vol. 10, No. 5, pp. 161-168.
- [8]. Poltorak S.T. Transformation of the military education system of Ukraine on the way to achieving NATO standards. Science and defense. 2019. Vol. 3, No. 2, pp. 3-10. URL: <https://doi.org/10.33099/2618-1614-2018-3-2-3-10> (date of access: 28.07.2022).
- [9]. Artamoshchenko V. S. Development of the military education system. Development of a program document of the Cabinet of Ministers of Ukraine. Science and defense. 2022. No. 4, pp. 26-33. URL: <https://doi.org/10.33099/2618-1614-2021-17-4-26-33> (date of access: 19.07.2022).
- [10]. Artemov V. Yu. Peculiarities of formation of psychological and communicative competence of operative employees of the SBU. Communicative strategies of the information society: linguistics, law, information security: Materials X Vseukr. conf. of young students, students and cadets, Kyiv, April 10. 2019. Kyiv, 2019. pp. 16-19.
- [11]. Brodsky R.V. Communication styles as a component of the professional competence of a military leader. Current issues of ensuring the service and combat activities of the forces of the security and defense sector: Materials of the All-Ukraine. round table, Kharkiv, April 24 2020. Kharkiv, 2020. pp. 19-25.
- [12]. Ryzhov I. M., Tkachov I. V., Kozenko Ya. O. Theoretical principles of assessing the competence of specialists in the fight against terrorism when conducting an overview of the national system of combating terrorism: Overview. Kyiv: National. Acad. SBU, 2022. 36 p.
- [13]. Oleksandrenko K., Telychko N. Socio-psychological aspects of the development of foreign language communicative competence of the future translator. Collection of scientific works of the National Academy of the State Border Service of Ukraine. Series: psychological sciences. 2020. Vol. 14, No. 3. pp. 208-219. URL: <https://doi.org/10.32453/5.v14i3.226> (date of access: 2022-08-27).
- [14]. On the decision of the National Security and Defense Council of Ukraine dated December 30, 2021 "On the Strategy for Ensuring State Security": Decree of the President of Ukraine dated February 16, 2022 No. 56/2022. URL: <https://zakon.rada.gov.ua/laws/show/56/2022#Text> (date of access: 08/24/2022).
- [15]. About the Security Service of Ukraine: Law of Ukraine dated March 25, 1992 No. 2229-XII: as of May 7 2022. URL: <https://zakon.rada.gov.ua/laws/show/2229-12#Text> (date of application: 30.08.2022).
- [16]. On the national security of Ukraine: Law of Ukraine dated June 21, 2018 No. 2469-VIII: as of June 15 2022. URL: <https://zakon.rada.gov.ua/laws/show/2469-19#Text> (date of application: 30.08.2022).
- [17]. On higher education: Law of Ukraine dated July 1, 2014 No. 1556-VII: as of October 27 2022. URL: <https://zakon.rada.gov.ua/laws/show/1556-18#Text> (date of application: 30.08.2022).
- [18]. On the approval of the National Framework of Qualifications: Decree of the Cabinet of Ministers. of the Ministers of Ukraine dated November 23, 2011 No. 1341: as of July 2 2020 URL: <https://zakon.rada.gov.ua/laws/show/1341-2011-n#Text> (date of application: 08/30/2022).
- [19]. Methodological recommendations for the development of higher education standards: Order of the Ministry of Education and Culture of Ukraine dated June 1, 2017 No. 600. URL: <https://mon.gov.ua/storage/app/media/vishcha-osvita/proekty%20standartiv%20vishcha%20osvita/1648.pdf> (date of application: 30.08.2022).
- [20]. EU Cybersecurity Strategy for the Digital Decade <https://digital-strategy.ec.europa.eu/en/library/eu-cybersecurity-strategy-digital-decade-0>
- [21]. S. Yevseiev, V. Ponomarenko, and O. Ravevnyeva, "Assessment of functional effectiveness of the corporate scientific-educational network based on comprehensive indicators of service quality", Eastern-European Journal of Enterprise Technologies, 6/2 (90), pp. 4-15, 2017.

[22]. S. Yevseiev and other "Development of a methodology for building a security information system in the corporate research and education system in the context of university autonomy". Eastern-European Journal of Enterprise Technologies. 2019. 3/9(99). pp. 49-63.

[23]. 100 best universities in the world <https://worldscholarshub.com/uk/universities-in-the-world/>.

[24]. ITU-T Recommendation X.509 URL: https://www.itu.int/rec/dologin_pub.asp?lang=s&id=T-REC-X.509-200508-SI!!PDF-R&type=items.

УДК 378.4:004.056:327.1

Меленті Є., Євсєєв С., Король О., Мілевський С., Хвостенко В. Застосування інноваційного підходу в модернізації вищих навчальних закладів СБУ

Анотація. Сили безпеки і оборони є основним інструментом держави для протидії збройній агресії російської федерації та забезпечення оборони України, захисту безпеки населення та інтересів держави. Враховуючи повноваження, покладені на Службу безпеки України (СБУ), у різних кризових ситуаціях вітчизняна спецслужба виконує завдання як у складі сил безпеки, так і у складі сил оборони, що в сучасних умовах потребує вдосконалення система підготовки кадрів для СБУ. В умовах модернізації навчального процесу при підготовці стандартів підготовки фахівців з урахуванням досвіду підготовки військових кадрів країн-членів НАТО постає завдання визначення професійних компетентностей випускників вищих навчальних закладів СБУ, що дозволить їм успішно виконувати оперативні та бойові завдання в практичних підрозділах, стає особливо доцільним. За результатами дослідження формалізовано порядок формування державного замовлення на підготовку фахівців для СБУ та кваліфікаційні вимоги до майбутнього працівника. Окреслено сучасні можливості електронної освіти у формуванні інноваційних вищих навчальних закладів. При організації освітньої діяльності ЗВО СБУ запропоновано використання корпоративної інформаційно-освітньої системи та шляхи підвищення рівня безпеки її інформаційних ресурсів в умовах потенційних і перспективних загроз кібербезпеці.

Ключові слова: інноваційний заклад вищої освіти, професійні компетенції, інформаційні ресурси, стейкхолдери.

Меленті Євгеній Олександрович, кандидат технічних наук, доцент, директор навчального центру Національної академії Служби безпеки України.

Yevhen Melenti, candidate of Technical Science (PhD), associate professor, director of the training center, National academy of Security Service of Ukraine.

Євсєєв Сергій Петрович, доктор технічних наук, професор, завідувач кафедри кібербезпеки Національного технічного університету «Харківський політехнічний інститут», Україна.

Serhii Yevseiev, doctor of technical science, professor, head of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Король Ольга Григорівна, кандидат технічних наук, доцент кафедри кібербезпеки Національного технічного університету «Харківський політехнічний інститут», Україна.

Olha Korol, candidate of Technical Science, associate professor of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Мілевський Станіслав Валерійович, кандидат економічних наук, доцент кафедри кібербезпеки Національного технічного університету «Харківський політехнічний інститут», Україна.

Stanislav Milevskiy, candidate of economic sciences, associate professor of cybersecurity department National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Хвостенко Владислав Сергійович, кандидат економічних наук, доцент кафедри кібербезпеки, Національний технічний університет «Харківський політехнічний інститут», Україна

Vladyslav Khvostenko, candidate of economic sciences, associate professor of cyber security department, National Technical University "Kharkiv Polytechnic Institute", Ukraine.

Отримано 15 березня 2023 року, затверджено редколегією 1 квітня 2024 року
