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Abstract. The paper presents the content of SQF MILOF[1] and its validation according to NVNA[2] cadet's curriculum. The ad-hoc working group of European initiative for exchange of military young officers was tasked to develop SQF MILOF. On the validation stage a comparative analysis has been made where the defined learning outcomes of the Qualification framework were compared with the requisites of the existing educational documentation supporting the naval cadet's education. As a result, the level of education and qualification in NVNA according to SQF MILOF is defined.

1. Need and development of SQF MILOF

From 2009 to 2014, the European Security and Defence College (ESDC) developed the first stage of a SQF MILOF. This was in the context of the European Initiative for the Exchange of Young Officers inspired by Erasmus (Military Erasmus programme). The project was known as 'Comparison of courses based on competences' and, at the time, its focus was on the beginning of the military officer career [1]. However, the Implementation Group[3] proposed that a comprehensive framework be developed to cover all critical stages of the military officer career.

The Chairman of the European Union Military Committee took the recommendations of the EU Military Training Group on board [2] and, in July 2016, he invited the ESDC (supported by the European Union Military Staff) to consider establishing a SQF MILOF for all levels of the military officer career [3].

On 15 December 2017, the ESDC Secretariat invited member states to complete a questionnaire and nominate experts with relevant operational, educational and training expertise to form an EU-level ad-hoc working group [4]. The purpose was to develop a SQF MILOF for all levels of the military officer career.

The SQF MILOF WG was convened in June 2018 under the auspices of the ESDC. During the period of work, representatives of 21 member states and 13 national, international and Non-Governmental Organizations contributed to the process. The author was part of this working group. The participants

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[1] Sectoral qualification framework for Military Officers
[2] Nikola Vaptsarov Naval Academy
[3] The IG leads the Military Erasmus programme

acted as providers of input or as points of contact with national authorities and experts for the development of SQF MILOF.

SQF MILOF aims to offer member states a cross-referencing tool for military qualifications, so that qualifications obtained in one of the member state can be compared with similar qualifications granted by another member state. SQF MILOF relates to lifelong learning for a particular sector: military officers.

The WG defines SQF-MILOF as a pan-EU (transnational) qualifications framework for the military officer profession. More specifically, it is: [6]

- *operationally relevant*. SQF MILOF is based on the competence profile of a generic European officer. The competence profile comprises the knowledge and skills needed in the complex and multi-dimensional future operating environment. It constitutes what commanders expect from their officers in the event of unexpected and rapidly evolving internal and external security situations with military implications.
- *learning relevant*. SQF MILOF describes the learning (profile) outcomes an officer should reach at specific moments in their career. It describes what the officer should know and be able to do, with a certain degree of responsibility and autonomy, in order to match the competence profile for a generic European officer.
- *EU relevant*. SQF MILOF is designed to be aligned and compliant with the EQF[4] for lifelong learning. By referencing national programmes against SQF MILOF and the EQF, member states will be able to compare their qualifications with similar qualifications granted by another member state.
- *nationally relevant*. SQF MILOF is designed to be aligned and compliant with the NQFs[5] of the EU members. It is designed to be a commonly agreed tool to support the development of member states' educational programmes and course curricula.

The SQF-MILOF has been formulated as the learning outcomes (knowledge, skills, autonomy and responsibility) an officer should reach in the eight competence areas:

- Four areas are assessed as core competence areas and cover professional competencies, which are specific to the sector (military officer profession): Military service member; Military technician; Leader and Decision-Maker, and Combat-Ready Role Model.
- Four areas are transversal competencies, which although not specific to the profession, are modelled and adapted according to the characteristics of the profession: Communicator; Learner and Teacher/Coach; Critical Thinker and Researcher and International Security/Diplomacy

SQF MILOF is built on four learning levels of complexity: EQF 5 to EQF 8. The SQF MILOF level descriptors (see table 1) are headlines for the SQF MILOF learning outcomes. Learning outcomes here are high-level overarching statements, intended to cover learning in all its expressions: formal education programmes, vocational training undertaking in the course of the career, skills acquired on the job, experience from operations and exercises, and even informal learning from personal reading or from professional and social interaction. The WG has developed detailed descriptions of SQF-MILOF learning outcomes, that describes progression of learning complexity for the military officer profession, focused on military organizational architecture/operations. In this respect, the outcomes describe learning relevant for each of the following four dimensions:

- Single arm/branch (learning at this stage focuses on the individual and low tactical level);
- Single service (learning at this stage focuses on the tactical level);
- Joint/multiple services (learning at this stage focuses on the operational level);
- Pol/Civ-Mil (learning at this stage focuses on the strategic level).

Table 1. SQF MILOF Level Descriptors

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[4] European Qualification Framework [5]
[5] National Qualification Frameworks

Levels	EQF 5	EQF 6	EQF 7	EQF 8
Knowledge	Comprehensive and specialised knowledge of the military domain	Advanced knowledge of the military domain involving a critical understanding of the theory and principles of the military science and art	Highly specialised knowledge of the military domain as the basis of original thinking across multiple branches/ services	Possesses the most advanced knowledge of the military service and at the interface between the different military services
Skills	A comprehensive range of cognitive and practical skills required to develop various creative options and plans to implement specific military tasks and actions.	Advanced skills, demonstrating the innovation required to solve complex unpredictable problems in the application of military science and art	Specialised problem-solving skills required to advise and develop new knowledge and procedures and integrate knowledge from different branches or military services.	The most advanced and specialised skills and techniques of the military domain, required to solve critical problems in research and/ or innovation, development of new knowledge, enabling a joint employment of military structures
Responsibility/ Autonomy	Exercise limited command and control functions of military activities in a fluid and continuously changing, unpredictable operating environment	Exercise command and control of complex tactical and technical activities and tasks, taking responsibility for decision making in unforeseen circumstances. Take responsibility for managing professional development of subunits/units/ structures under his/ her responsibility.	Manage and transform complex military tasks and activities within unpredictable contexts with strategic consequences. Take responsibilities to lead and manage military organisations.	Demonstrate substantial authority, innovation, autonomy in the development of advanced and complex new military strategies and policies in the military domain including research. Take responsibility to lead and strategically manage joint organisations.

2. Methodology of assessment

The aim of the informal validation is to verify to what extent the learning outcomes described by the SQF MILOF can be used eider to *assign a SQF MILOF level* and *define a military focus* to NMQ[6], or to improve or refine relevant national programme/ course curricula leading to a NMQ.

2.1. Definition of levelling and military focus

Levelling NMQ to the SQF MILOF means defining the learning complexity of the NMQ by assigning it a SQF-MILOF level (EQF level). The SQF-MILOF learning outcomes can facilitate the relevant academic/national authorities in identifying the learning complexity of an existing NMQ or help them define the learning complexity for a new NMQ, in accordance with the SQF-MILOF levels. The SQF-MILOF level and its corresponding learning outcomes could then be displayed on the diploma/ certificate supplement. Levelling would serve a general education purpose. On one hand, levelling would help national competent entities understand the connection of the NMQ with the NQF and on the other hand, levelling will facilitate other stakeholders, at European Union level, to recognize the link of the NMQ with the EQF.

Defining the military focus of a NMQ implies positioning the learning outcomes on one of the sections of the military organizational architecture described by the Core Curriculum for Military Officers (MILOF-CORE): single arm/ branch; single service; joint/multiple service; political/ civilian-military [6] (The military focus is defined for every one of the eight competence areas. An example of one of the areas is shown on Table 2). As far as the military professional community is concerned, there may be a need to understand not only how complex the learning for that qualification is but also the focus of that qualification with regard to military organizational architecture/ levels of operations, in

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[6] National Military Qualification

accordance with the MILOF-CORE levels. This requirement would satisfy a more precise comparison between similar qualifications, facilitate mobility of learners among the member states and overall interoperability between teachers and cadets from different academies/universities.

Table 2. Example of MILOF-CORE Content for the Learning Area: Military decision making

Level MILOF-CORE Focus	EQF 5	EQF 6	EQF 7	EQF 8
Single Arm/Branch (low tactical)	Outline procedures of small teams and subunits belonging to a single branch/ arm in peace time, high intensity and peace support operations	Apply the military decision-making process (MDMP) specific to the arm/ branch for full spectrum of operations at the low tactical level	n/a	n/a
Single Service (tactical)	Describe the decision making process at the tactical level for full spectrum operations at national and multinational level as part of a formation headquarters	Practice decision making under pressure, in dangerous and fluid situations to implement higher echelons decisions at the tactical level	Critically evaluate and select the situations requiring advice and provide expertise to higher echelon commanders in accordance with their guidance	n/a
Joint/Multiple Services (operational)	Describe the decision making process at the operational level for full spectrum operations in a national/multinational context as part of a combined joint headquarters	Discuss the context of making decisions in a timely manner in complex and unpredictable environment at joint operational level for full spectrum of operations	Critically evaluate various types of situations (peace and war time), analyse the key implications and propose feasible and timely options for the resolutions of problems/ crisis/ conflict from the multiple services perspective at joint operational and strategic level for full spectrum of operations	n/a
Pol Civ-Mil (strategic)	Describe the decision making process at the strategic level for full spectrum operations in a national/multinational context as part of a whole of government/ integrated approach context	Practice decision making under pressure and lacking political-strategic direction to implement political-strategic objectives in national/ multinational context	Critically interpret the situations lacking political-strategic direction in a changing and complex environment, to implement military national/ multinational strategies.	Determine innovative responses to crisis situations and complex interventions in high risk environments by defining the right mix of policies, instruments and tools to achieve national/ multinational strategic objectives

2.2. A process of validation
The process of levelling NMQs to SQF-MILOF and defining the military focus consist of five steps:
    Step 1 - Identifying the NMQ and its constituent elements.
    Step 2 - Identifying NMQ's KLOs[7] in the core competence areas to achieve the overall goal of the NMQ.
    Step 3 - Matching the NMQ KLOs with the learning outcomes of the relevant learning areas in MILOF-CORE focus (row) and at the appropriate SQF-MILOF level (column) (Table 2).

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[7] Key Learning Outcomes

Step 4 - Determining the SQF-MILOF level of the NMQ.
Step 5 - Determining the military focus of the NMQ.

3. Assessment results

The assessment was made using the existing cadet's curriculum at NVNA. The curriculum is established based on the NQF (level 6), Ordinance on the state requirements for acquiring higher education at the Bachelor degree in the professional field "Military Affairs" [7] and the Qualification requirements issued by Ministry of Defence. It consists of 240 ECTS, formal education with no military prerequisites. Following the methodology and the national regulations, based on the expertise and conducting a creative process, the NMQ as knowledge, skills and responsibility and autonomy, as well KLOs were identified (see table 3 and table 4).

Table 3. Identification of NMQ and its constituent elements

| Learning Outcomes - Knowledge | **Basic knowledge**:
- the legal bases and the normative regulation in the Armed Forces, the organization of the life in the army, the basic military skills, military habits, order and discipline;
- The Statute for the military service and the Ship Statute of the Navy in a volume allowing the performance of its functional duties
- the means and methods for individual protection against nuclear, chemical and biological weapons, medical assistance and fire protection;
As a platoon commander:
- the content and sequence of the commander's activities in organizing the combat operations of the unit / military formation
- the management of the types of combat operations at the tactical level in the process of command and control of a subordinate military formation at platoon level (and equated to it
- the organization of the general battle of the division, the platoon / company, as well as for their management in different conditions of the situation
- the basics of crisis management and the participation of military formations at the tactical level in peacetime operations
- the rules for the operation of weapons, technical systems and ammunition
- the impact of weapons of nuclear, chemical and bacteriological destruction, the means of collective and individual defense, and the organization of the defense of forces at the tactical level
- the military history of Bulgaria, the naval traditions
- To apply the psychological and pedagogical concepts for team building, care and building a spirit of trust, high motivation and responsibility for the tasks.
As Navy commander:
- the structure of the training in the Navy, the training cycles, the regulatory documents;
- the organization of the logistical support of the ships at sea and shore and the requirements of the national and NATO regulatory documents
- the structure and principles of operation of the Navy armament and technical systems
- the systems for the collection, processing, distribution of information and control of weapons
- the tactics of using the single ship and the basics of the actions of the naval forces at the tactical level
- the organization of the ship 's combat and daily service and the duties of officials at sea and on shore
- tactical maneuvering in the performance of tactical tasks and for ensuring the safety of navigation
- the basics of electronic warfare
- the basics of the Naval communications
- the organization, structure, military-political leadership and military structures of the EU and NATO
- the main techniques, tactics and procedures for carrying out the activity of warships, according to the national documents and the standardization documents of NATO at sea and on shore
National security, resource management and legal training:
- the structure and organization of national and regional international security systems
- basic theories of war and military strategies
- sources and actors of conflicts, global, national and regional security challenges
- the causes of asymmetric security threats and methods for combating them
- management of human, financial, material, information resources
- the basic laws and methods for quantitative analysis
- the main elements of the decision-making process by the commander and the organization and combat use of the units |

	- the main provisions of the Constitution of the Republic of Bulgaria, the National Defense Strategy, the Doctrine of the Armed Forces of the Republic of Bulgaria and the Doctrine of Naval Operations; - the main provisions in the maritime legislation and international conventions in the scope concerning them - the basics of international maritime and humanitarian law - the basics of Bulgarian civil, military and criminal law. **Fundamental and general engineering**: - the basics of higher mathematics and mathematical models in a scale sufficient to solve specific tasks in the military and professional field - the basic laws and principles of physics, technical mechanics and their application in military equipment and shipping - the basic laws and principles of electrical engineering and radio electronics and their application in modern technical equipment - the basics of ICT, programming and modern software products applied in the military field and navigation - the principles of operation, the structure and the rules for operation of the technical means of navigation - the basics of navigation and automation of navigation and the methods for determining and assessing the accuracy of the ship's position - the principles of operation, the general structure and the rules for the operation of the electronic equipment and the systems for monitoring and control of the weapon - the organization and methods for navigational, hydrographic and hydro meteorological support of the ship's navigation and use of weapons - the theory and design of the ship and her safety - the general arrangement and principles of operation of the ship's propulsion and auxiliary systems - the device and the rules for operation of the ship's devices and systems - the planning and conducting of repair work on the ship - the basics of ship handling - the rules for navigation in separate traffic systems, navigation support systems and international rules for avoiding collisions at sea; knowledge of the national environmental protection laws, international convention for the prevention of pollution in the seas (oceans) by ships. **Leadership, language and physical training**: - the essence of military leadership at the tactical level - the socio-psychological nature of the leader's personality and development of strategies for relation towards subordinates - the behavior of individuals in different situations and opportunities to motivate subordinates - the essence of the activity in team building and management of group processes - the socio-psychological nature of official and interpersonal communication - the essence of the management style, the peculiarities of the different management styles of a military unit and their application in different situations; - the psychophysiological features of the skills related to stress control in the naval activity and recognition of the management of various extreme situations; - the essence of the training process and the military training - the essence of the process of education, the principles and methods of education
Learning Outcomes - Skills	**Basic skills:** - to demonstrate communicative abilities in communication in the military hierarchy; - the main tactical techniques in individual actions in a military situation - handling of individual weapons, methods and rules for shooting - map and terrain orientation - wearing the internal and guard services - to maintain basic physical qualities **As a platoon commander:** - to analyse the main personal characteristics of his subordinates and build official relations with them; - to analyse and diagnose the social phenomena in the military formation and to exercise adapted to the conditions governing influences for maintaining a good socio-psychological climate; - to demonstrate the methods of education, conducting exercises and training sessions with subordinate personnel, as well as to organize and conduct classes with his subordinates and use appropriate methods of training and education; - to adapt to changes in environmental conditions and to carry out resistant to adverse external influences management influences on group processes, for effective and efficient functioning of the military formation;

	- to have self-control and restraint in various situations of relationships with subordinates and their superiors;
	- to be able to communicate with different categories of servicemen and to master the rules of verbal and written communication.
	As Navy commander:
	- to apply in practice the requirements of the statutes and other normative documents;
	- to manage his subordinate personnel for the use of combat and auxiliary equipment and weapons, using its full capabilities in everyday conditions and in combat;
	- to train and educate the personnel of the unit entrusted to him
	- to manage the subordinated personnel, to organize, conduct and report the training in his subdivision
	National security, resource management and legal training
	- The apply the basic principles, methods and tools for team management
	Naval habits and skills:
	- to ensure navigation in elementary and complex conditions of the situation
	- to organize and implement the navigation, hydrographic and hydro meteorological support of the weapon use and the safety of navigation
	- to organize and lead the damage control of the weapon and the technical systems of the combat unit / section
	- to perform the duties of a watch officer
	- to direct the actions of the bow (stern) command during maneuvers of the ship
	- operate the ship's deck equipment
	- to use the ship's radars and communication equipment and to utilize the acquired information
	- to practice scuba diving at depths up to 30 m
	- to swim, row and steer a rowing-sailing boat
	Practical training and internship:
	- to organize the activity and combat use of weapons, combat equipment and technical means in the naval formations;
	- to organize the activity of the subordinates in the daily military life and in the use and maintenance of the technical equipment and the armament;
	- to organize and conduct classes with his subordinates and use appropriate education and training methods
Learning Outcomes - Responsibility and autonomy	- Knowledge of English to the extent that allows for conversation on professional and everyday topics, use of literature in English in the specialty and preparation of the necessary documents for its activities in the interest of conducting activities within NATO. Compliance with the requirements of STANAG 6001 at level 2-2-2-2.
	- good health and fitness, sensitive hearing and normal speech, normal vision and color perception;
	- responsibility and potential for building high professionalism;
	- creative thinking and spatial orientation;
	- positive moral and volitional qualities;
	- maintaining the ability for physical and mental loads for long periods, to work in complex conditions, adequacy of the reactions to various impacts, easy and fast adaptation to new conditions and other activities.

Table 4. Identification of KLOs of NVNA cadets' curriculum.

Competence area	KLOs
Military Service member	- Knowledge of English to the extent that allows for conversation on professional and everyday topics, use of literature in English in the specialty and preparation of the necessary documents for its activities in the interest of conducting activities within NATO. Compliance with the requirements of STANAG 6001 at level 2-2-2-2.
	- good health and fitness, sensitive hearing and normal speech, normal vision and color perception;
	- responsibility and potential for building high professionalism;
	- creative thinking and spatial orientation;
	- positive moral and volitional qualities;
	- maintaining the ability for physical and mental loads for long periods, to work in complex conditions, adequacy of the reactions to various impacts, easy and fast adaptation to new conditions and other activities.

Military Technician	- List the technical specifications of relevant operating platforms under his/ her responsibility and demonstrate their effective exploitation - Describe the combat service support capabilities of subunits during full spectrum operations. Explain the unit sustainability - Explain the C4ISR systems –structure, operation, Electronic warfare. - Explain the resource management for the military units
Leader and Decision-Maker	- Explain the model of team leader role in military organizations in the context of hierarchy and wide spectrum of situations - Describe the specifics in relationship OF-NCO based on the manuals and ethics - Describe relevant leadership concepts, theories, principles and good practices. Demonstrate their implications in military environment
Combat-Ready Role Model	- Demonstrate commitment in actions engaging values and ethics of the military organisation in peace time, high intensity and peace support operations - Explain the role of international humanitarian law, national law and military regulations in orders issuing and following. - To know the Naval history and reflect the evolution of arms, forces, organizations, conflicts. - Demonstrate high level of morale and discipline of subordinates, and appropriate physical and psychological fitness - Demonstrate gender awareness and its application in military environment - Demonstrate cultural awareness and its application in military environment
Communicator	- Describe the way to convey relevant messages to a broad audience - Demonstrate ability to provide written and oral orders and reports - Demonstrate ability to promote opinion and arguments in military environment adjusting to different type of audience - Demonstrate ability to proper interact with others
Learner and Teacher/Coach	- Describe the models of mentoring, coaching, training and teaching and their adjustment to the military context - Describe the organisation and procedures of basic military training, drills and exercises at team level or equivalent
Critical Thinker and Researcher	- Explain the implementation of the analysis and data processing methods in planning the operations at various levels - Explain the evolution of the main factors of the operating environment - Analyse the effects and challenges of new technologies on military domain
International Security/ Diplomacy Actor	- Describe security, defence and conflict management in the context of diplomacy - Analyse the security dimensions of different theories in International relations and the role of different instruments for national goals completion

After matching (step 3) the NVNA KLOs (table 4) with the learning outcomes of the relevant learning areas in SQF MILOF is concluded that:

- 15 of KLOs were assessed at EQF level 6 of SQF MILOF, and 11 – at level 5. The core competence areas that cover professional competencies, which are specific to the sector were assessed mainly with level 6 (13 against 6).

- 8 KLOs are focused on *Single Arm/Branch (low tactical level)* while 1 – on tactical level.

As result of the SQF MILOF informal validation, the level of education and qualification in NVNA against the SQF MILOF – *EQF Level 6, focused at the low tactical level* was reported to the SQF-MILOF WG at the beginning of January 2021.The assessment was highly appreciated.

The outcome of the informal validation will be used by the ESDC, in the context of the SQF MILOF Working Group to further refine the SQF MILOF, before the final approval by the member states. It will be use by the national authorities as military education and qualification reference and by NVNA as basis for further improvement of the cadet's curriculum.

References

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[2] EU Military Training and Education Annual Report 2015, doc. 11066/16, dated 8 July 2016

[3]   Letter from the EUMC Chairman to the Head of the ESDC, doc. CEUMC 126/16, dated 19 July 2016

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[5]   European Qualification network. ttps://europa.eu/europass/en/european-qualifications-framework-eqf, available 08.04.2021.

[6]   Sectoral Qualifications Framework for the Military Officer Profession, Doc. ESDC/2020/234, Dated 7 December 2020.

[7]   НАРЕДБА за държавните изисквания за придобиване на висше образование на образователно-квалификационна степен „бакалавър" в професионално направление „Военно дело" по специалностите от регулираната професия „офицер за тактическо ниво на управление". https://www.mon.bg/upload/4191/nrdb_edi_ofitser.pdf, available 08.04.2021