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SYSTEM**

PHARE 2000

NATIONAL VOCATIONAL QUALIFICATION STANDARDS

Development and application

Edited by

*Stefan M. Kwiatkowski
Ireneusz Woźniak*

Warsaw 2006

Ministry of Labour and Social Policy

This publication contains materials created in the course of implementation of Part II of the Phare 2000 Project no. PL0003.11, "National Vocational Training System", Action 2: „Development of the set of national vocational qualification standards, based on the analysis of requirements for particular jobs". The project was executed in cooperation with the Ministry of Economy, Labour and Social Policy – the main project beneficiary – by the consortium consisting of: German Education and Training (GET – Germany), DEMOS (France) and Doradca Consultants Ltd. (Poland). The following institutions were sub-contractors: Institute for Sustainable Technologies (ITeE) in Radom and PBS – Pracownia Badań Społecznych (Institute for Social Research) in Sopot.

NATIONAL VOCATIONAL QUALIFICATION STANDARDS - Development and application

Edited by: **Stefan M. Kwiatkowski**
Ireneusz Woźniak

This publication contains fundamental information on the set of 40 national vocational qualification standards, developed in the course of the Phare 2000 Project "National Vocational Training System – Part II". It presents the methodology for developing standards on the basis of requirements pertaining to particular jobs in enterprises, their possible application and examples of vocational standards' descriptions. It is addressed to a broad spectrum of individuals and institutions, interested in the development and application of vocational qualification standards, and in particular for specialists representing: trade unions and associations, business chambers, schools, training and educational institutions, boards conducting vocational exams, etc. This publication would be useful for students of pedagogical universities, especially for those majoring in *pedagogy of labour*.

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Reviewers of the Polish language edition:
Mr. Henryk Bednarczyk, Ph.D., Professor of ITeE
Mr. Ryszard Gerlach, Ph.D., Professor of AB

Translation: Magdalena Wajda-Kacmajor
Consultation: Danuta Goćławska

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Institute for Sustainable Technologies – National Research Institute
K. Pułaskiego 6/10, 26-600 Radom, tel. (00 48 48) 48 364-42-41, fax (00 48 48) 364-47-60,
e-mail: instytut@itee.radom.pl <http://www.itee.radom.pl>

1542

Table of contents

Introduction	5
1. Development of the national vocational qualification standards on the basis of the analysis of job requirements	
– <i>Stefan M. Kwiatkowski, Ireneusz Woźniak</i>	7
1.1. Objectives and tasks	7
1.2. Definitions	9
1.3. Development of the national vocational qualification standards	11
1.4. Organization of research	17
1.5. Procedure for development of standards	19
1.6. Developing the research questionnaire	23
1.7. Research area	29
1.8. Application of national vocational qualification standards	32
1.9. Conclusions and recommendations	34
2. Information system on the national vocational qualification standards	
– <i>Wojciech Karsznia, Jerzy Dobrodziej</i>	37
2.1. Assumptions for the development of the database on vocational qualification standards	38
2.2. The database information scope	38
2.3. Rules of data access for external users	39
2.4. User interface	42
3. Examples of Polish vocational qualification standards	45
1. European integration specialist (247902)	47
2. Nurse (3231)	62
3. Mechatronics technician (311990)	89
4. Mason (712102)	106

Introduction

In the modern approach to vocational training, the system under which the individual obtained his or her vocational qualifications is not relevant. What is important is finding a procedure for confirming the acquired skills. Therefore, a model / norm must be provided which would allow to define the type and level of vocational skills. The vocational qualification standard is to become such a norm. The vocational qualification standard is targeted to be a document of fundamental significance for the system of vocational training and life-long learning, human resources development, and the system of comparability and recognition of certificates and diplomas as well as the accreditation system of training units and certification of staff vocational qualifications. It shall, therefore, form the basis of the system for assuring the quality of vocational training and personnel.

Poland adopted the *National Strategy for Employment Growth and Human Resources Development for the years 2000-2006* which draws attention to the need of raising the quality of the training services offered. This can be achieved, *inter alia*, by the application of **national vocational qualification standards**. The *Strategy* assumes that the national qualification standards – common for the school and non-school systems – will be the basis for vocational training programmes and the system of vocational exams.

The **Ministry of Economy, Labour and Social Policy** is in charge of implementing the *Strategy* in terms of development of vocational training and vocational qualification standards. In the years 1993-1997, the project „*Adult Training*” was implemented, financed with a loan from the World Bank. The project resulted in the development and update of the International Labour Organization’s concept of constructing modules of employable skills. In the years 1998-2000, a PHARE-financed project was implemented, "*Analysis of training needs - building vocational qualification standards in Poland*". The project’s results included a methodology for building national vocational qualification standards, and descriptions of qualification standards for eight occupations: *mechatronics technician, employee of financial and accounting units, employment agent, career counsellor, social worker, employee of self-government administration, technician of labour safety and hygiene, security employee*.

The above named activities were continued by the Ministry of Economy, Labour and Social Policy under the PHARE 2000 Project no. PL0003.11 – “*National Vocational Training System – Parts I and II*”.

Part I of the project was executed on the basis of a twinning agreement, concluded between the Ministry of Economy, Labour and Social Policy of the Republic of Poland, and the French Ministry of Social Affairs, Labour and Solidarity. Under this contract, a dialogue with social partners was initiated in order to stimulate the development of lifelong learning.

The second part of the project was executed in the form of the contract to perform specific tasks. The contractor (an international consortium) has conducted works under three actions:

- Action no. 1: Enlargement of the information base and improvement of public statistics' tools, for regular analysis of lifelong learning, including international comparisons.
- Action no. 2: Development of the set of 40 standards of vocational qualifications based on the analysis of requirements for particular jobs.
- Action no. 3: Development and dissemination of 88 modular vocational training programmes based on the International Labour Organization's concept of modular employable skills

The purpose of this publication is to present the work performed under Action no. 2, in particular, the aspect of methodology and practical development of national vocational qualification standards. Descriptions of four selected standards are also provided.

This study benefits from earlier published articles which popularized the results of the project implementation:

- Stefan M. Kwiatkowski, Ireneusz Woźniak *The development of national vocational qualification standards*, *Edukacja* no. 3 (83) 2003.
- Stefan M. Kwiatkowski, Ireneusz Woźniak *National standards of vocational qualifications. The Labour Market*, special issue, December 2003.

As the editors of this volume, we would like to express our thanks to all co-authors, reviewers and evaluators of the national vocational qualification standards, the whole research team working on the project, as well as the employees of the Labour Market Department of the Ministry of Economy, Labour and Social Policy, who provided us with assistance pertaining to the subject matter on behalf of the project's beneficiary. We hope that the results of our work will be used to improve the quality of vocational training and, as a result, will contribute to increased vocational mobility of Polish employees.

Stefan M. Kwiatkowski
Ireneusz Woźniak

1 ■ Development of national vocational qualification standards on the basis analysis of job requirements

Stefan M. Kwiatkowski
Ireneusz Woźniak

For the purpose of building the vocational qualification standards in Poland, the model based on the concept of vocation was adopted. This model is based on isolated occupational tasks accompanied by sets of vocational skills, knowledge, psychological and physical features. The model describes, in a disjunctive manner, the „components of vocational qualifications”. Thanks to this approach, the Polish standard model has the advantages of modular structure indispensable if this standard is to be used for modular vocational training.

Owing to the emphasis on the role of qualifications in the performance of occupational tasks, the Polish model of standard will be easier for adaptation by the national education system which is deeply rooted with its traditions in the school system rather than a model based on occupational functions, common in Western countries. Also the model of external vocational exams developed by the Central Examination Board is based on the recognition of vocational qualifications, and not on occupational tasks/ functions. Therefore, the proposed standard of vocational qualifications could become a document that the Central Examination Board would use to determine exam criteria.

1.1. Objectives and tasks

The general purpose of ACTION No. 2 – “Development of the set of 40 national vocational qualification standards, based on the analysis of requirements for particular jobs” of the PHARE 2000 project “National Vocational Training System – Part II” was to contribute to assuring high quality of training offered under the system of lifelong learning, and increasing the transparency of vocational qualifications.

Detailed goals included:

- verifying methodology for the development of vocational qualification standards, structure of the standard and research tools developed under the project *Analysis of learning needs* (PHARE '98);

- developing the set of 40 national vocational qualification standards, based on the analysis of requirements for particular jobs, in 40 individual vocations listed in the classification of vocations and specialties;
- proposing organizational and legal solutions, and estimating the costs of implementing and functioning of the national vocational qualification standards;
- popularizing information on the work being carried out and vocational qualification standards.

Main tasks:

- Gathering experiences and results of the earlier projects of similar subject matter in order to properly place the set of national vocational qualification standards in the system of modular training and the public statistics' tasks, focused on the regular analysis of lifelong learning in Poland.
- Selecting 40 vocations to be used to develop the set of vocational qualification standards.
- Establishing research/ authors' teams whose composition would be matched to the specifics of the standardised vocations.
- Conducting pilot and target research in enterprises.
- Editing the standards in compliance with the results of the research conducted in enterprises.
- Evaluating the developed vocational qualification standards.
- Developing the structure of the NVQS database and algorithms for processing information contained in this database.
- Disseminating information on the developed vocational qualification standards (database, brochure, articles).
- Legal and economic analysis of the functioning of the national vocational qualification standards in Poland, taking into account the outcomes of Poland's accession to the European Union.
- Developing a project of organizational and legal solutions that determine the procedure for creating, approving and updating the collection of the national vocational qualification standards. Legal and organizational solutions for the standards were correlated with solutions referring to modular programmes (Action no. 3).

1.2. Definitions

The glossary of definitions developed for the purpose of describing national vocational qualification standards included the following terms:

VOCATION	– Set of occupational tasks, isolated as a result of social labour distribution, which require the employee to possess appropriate vocational qualifications.
OCCUPATIONAL TASK	– A logical portion or phase of the work within a vocation with a clearly defined start and end. – Set of occupational activities connected by a single goal of activities, ending with a specific product, service or significant decision.
TECHNOLOGICAL TASKS	– Refer to methods of actions undertaken on the job and at the position, but resulting from the enterprise's work technology. They are related to production technology, technology of providing services, or the manner of performing specific procedures and operations at the given position.
ORGANIZATIONAL TASKS	– Refer to organization and planning of work related to one's own job and position, in relation to cooperating jobs and positions. They combine the scope of the job with the scope of responsibility and self-control.
TASKS OF MANAGEMENT AND COOPERATION	– Refer to cooperation within a team of employees, team management, organization of team work, cooperation with supervisors, contractors, suppliers and the general business environment.
TASKS OF QUALITY CONTROL AND ASSESSMENT	– Refer to self-control of the performed work or delivered services, inspection of work of subordinate employees, quality evaluation of goods and services, responsibilities related to procedures of the quality assurance system implemented in the enterprise.
VOCATIONAL QUALIFICATIONS	– System of skills, knowledge, and psychophysical features indispensable to perform the set of occupational tasks.
SKILL	– Ability to perform specific actions which lead to the performance of an occupational task.
OCCUPATIONAL ACTIVITIES	– Activities undertaken within the occupational task, and resulting in the achievement of the goal defined under the occupational task. The activities can be of <u>motor</u> or intellectual nature.
KNOWLEDGE	– Set of information and procedures indispensable to form specific skills.
PSYCHOPHYSICAL FEATURES	– Innate or acquired traits of personality, talent, character and ability of using one's body (especially limbs and the receptors of sight, hearing, touch, taste etc.), necessary for proper and effective performance of occupational tasks.
POSITION	– The smallest organizational unit of an enterprise, place of performing work, part of production or service area occupied or serviced by an employee to perform the entrusted work – occupational tasks.
VOCATIONAL QUALIFICATION STANDARD	– A norm of minimum qualification requirements – approved by representatives of employers, employees and other key social partners, participants of the economy and the labour market – presented in the system of five levels of qualifications, broken down into qualifications assigned to typical positions or occupa-

	<p>tional tasks, extra-vocational qualifications, general, basic and specialist qualifications for the given vocation, describing the sets of necessary skills, knowledge and psychophysical features corresponding to the occupational tasks and qualifications isolated for the given vocation, and ensuring appropriate quality of the vocation performance.</p>
EXTRA-VOCATIONAL QUALIFICATIONS	<p>– Basic skills, knowledge and psychophysical features, necessary for effective work performance and for undertaking actions in vocational and extra-vocational life. The extra-vocational qualifications are reflected by positive attitudes and positive physical condition, combined with mastering of general abilities for practical and mental activities. The extra-vocational qualifications do not give the right to perform a vocation, but are indispensable to achieve the quality of work, required in modern times. For the purpose of the vocational qualification standard, it was assumed that the extra-vocational qualifications are common for the branch/sector to which the standardized vocation belongs.</p>
GENERAL VOCATIONAL QUALIFICATIONS	<p>– Requirements referring to skills, knowledge and psychophysical features, which predispose to perform a job in a specific vocational area, usually including a group of related vocations and specialties. For the purpose of the vocational qualification standard, it was assumed that the general vocational qualifications are common for all qualifications isolated in the standard for a given vocation.</p>
BASIC OCCUPATIONAL QUALIFICATIONS	<p>– Requirements concerning skills, knowledge and psychophysical features which enable effective performance of typical occupational tasks, characteristic for a given vocation.</p>
SPECIALIST QUALIFICATIONS	<p>– Specific, less frequent requirements related to skills, knowledge and psychophysical features, which enable the performance of specialized tasks, and of non-typical vocational functions.</p>
LEVELS OF VOCATIONAL QUALIFICATIONS	<p>– Are a hierarchical system of qualifications, reflecting the degree of complexity and difficulty of occupational tasks, and qualification requirements related to them. They can be used to evaluate work, build the hierarchy of employees, determine scope of responsibility, define training levels, etc.</p>
Level 1	<p>– Qualifications necessary to execute simple, routine tasks performed under the direction of a supervisor which are the basis for further, more specialized activities.</p>
Level 2	<p>– Qualifications necessary to perform tasks in typical situations. Some tasks can be more complex and may require individual actions, characterized by individual responsibility. They can also require the ability to work in a team.</p>
Level 3	<p>– Qualifications necessary to perform complex tasks, in both typical and problematic conditions. The tasks are characterized by a variety of performed tasks, and require self-reliance and responsibility. They can also refer to the ability of managing the work of others.</p>
Level 4	<p>– Qualifications necessary to perform many varied, complicated tasks whose nature is technical, organizational or specific for the given area of vocational activity. The tasks require a high degree of personal responsibility and self-reliance, as well as the ability to lead a team of employees.</p>

Level 5 – Qualifications necessary to perform complex tasks, often in problematic conditions, which require making decisions of strategic importance for the whole organization. These tasks are connected with full responsibility for the work and development of other persons. They also require the ability to diagnose, analyse, forecast, plan and implement new ideas into business practice.

1.3. Development of the national vocational qualification standards

Development of the structure of the national vocational qualification standard and individual elements of this standard was the fundamental issue for the first works performed within the project.

According to the adopted definition, the vocational qualification standard is a *"norm of minimum qualification requirements for the given vocation"*.

The standard's backbone consists of a set of occupational tasks – T-1, T-2, T-3 ... T-n; and a set of component qualifications Q-1, Q-2, Q-3 Q-i.

It was assumed that several (less frequently, one) related occupational tasks can be linked with the K-i component which consists of three basic components:

- skills ($S_1 - S_j$);
- knowledge ($K_1 - K_j$),
- psychophysical features ($P_1 - P_j$).

For the proper performance of a job, a Z-n set of occupational tasks must be assigned a corresponding set of vocational qualifications (K-i). The number of the isolated qualifications should be, as a rule, much smaller than the number of occupational tasks. With such definition of the structure, the model of vocational qualification standard complies with the definition of a vocation as *"a set of occupational tasks"*.

The structure of the vocational qualification standard is show in Figure 1.

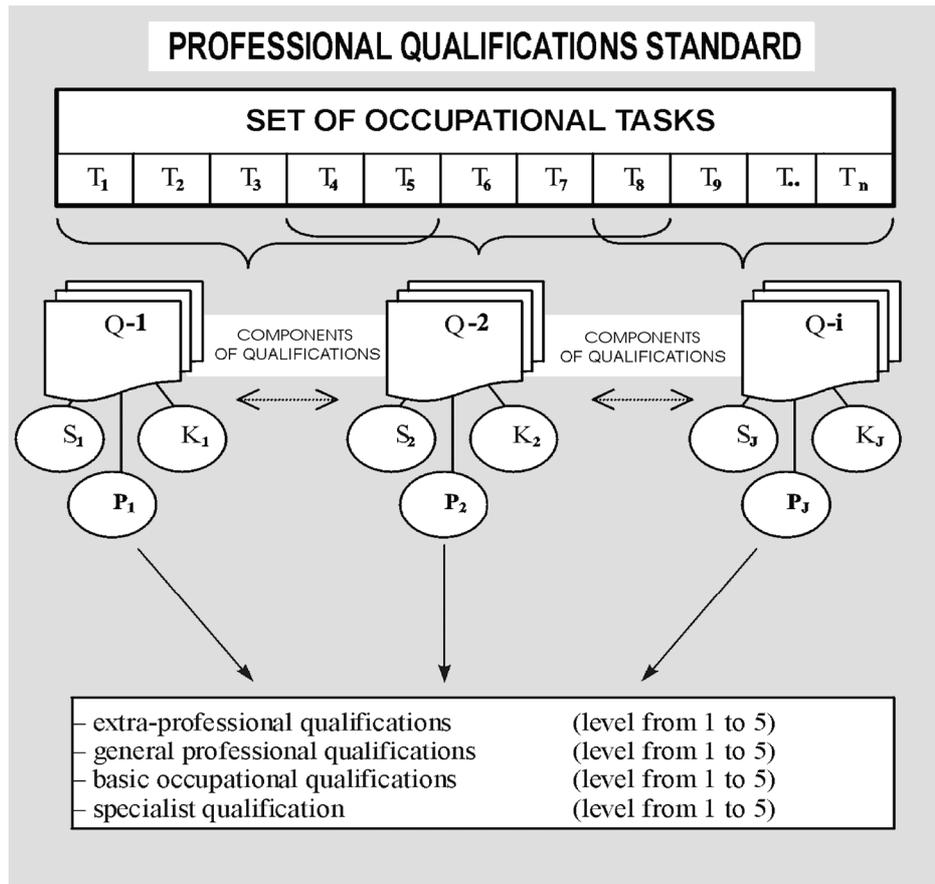


Figure 1. Structure of the vocational qualification standard

The vocational qualification standard is a complex, hierarchical structure with specified relations among the qualification requirements in the system of skills, knowledge and psychophysical features, type of qualifications and level of vocational qualifications. For the purpose of the project it was assumed that vocational qualifications can appear on five levels. An attempt to define the qualification levels was made on the basis of British experiences in the area of *National Vocational Qualification* project (NVQ) and on the basis of qualification levels definition adopted in the European Union for the sake of comparison.

Figure 2 presents the model of vocational qualification standards, seen in three dimensions: 1) qualification component, 2) qualification type, 3) qualification level.

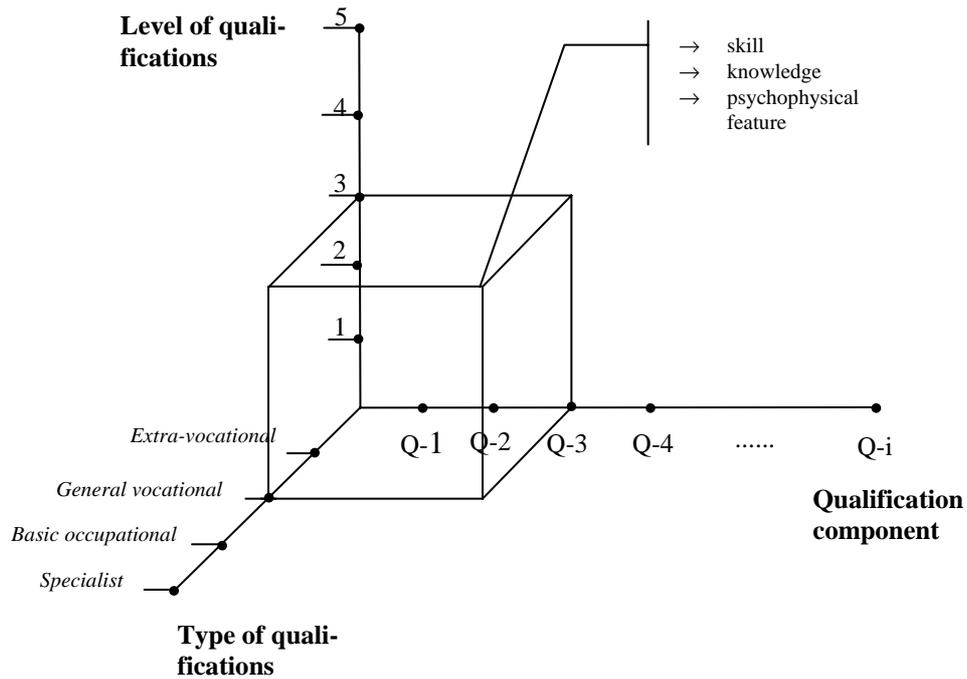


Figure 2. 2. Three-dimensional model of vocational qualification standards

The essence of qualification – the three notions: *skill – knowledge – psychophysical feature* is illustrated as the intersection point of the coordinates of three axes. Every skill, element of knowledge and psychophysical feature is precisely defined by means of the qualification component, qualification type and qualification level.

The differentiation between levels of vocational qualifications is closely related to the complexity level of occupational tasks and not to the level of training. Each of the qualification levels is matched to – in compliance with the adopted definitions – an appropriate scope of qualification requirements which entitle to undertake work of a specific degree of complexity, independence and responsibility. The list of applications for the multi-level qualification structure is an open list. It can be used in various social sub-systems where the formal recognition of vocational qualifications and the hierarchy of qualifications are important (such as the social insurance system, collective labour agreements with skill grading manuals, system of vocational exams, etc.). The isolation of vocational qualification levels should also support the selection of the appropriate training level for a given vocation and, in this way, contribute to the recogni-

tion of certificates and diplomas, setting appropriate remuneration levels, or building the hierarchy of jobs.

Frame 1 presents a specimen of a form used to describe national vocational qualification standards.

Frame 1. Sample form for vocational qualification standards

<p>VOCATIONAL QUALIFICATION STANDARD FOR THE VOCATION ... <i>(name of the vocation from the classification of vocations and specialties)</i></p> <p>INFORMATION ON AUTHORS, CONSULTANTS, REVIEWERS AND EVALUATORS</p> <p>INTRODUCTION</p> <p>GLOSSARY OF TERMS</p> <p>1. LEGAL FOUNDATIONS OF JOB PERFORMANCE</p> <p>2. SYNTHETIC DESCRIPTION OF THE VOCATION</p> <p>3. POSITIONS</p>
--

Table 1. Assignment of positions to levels of vocational qualifications

Level of vocational qualifications	Typical positions	COMMENTS
1		
2		
3		
4		
5		

4. OCCUPATIONAL TASKS

- T-1
- T-2
- T-3 (etc.)

5. COMPONENTS OF VOCATIONAL QUALIFICATIONS

- Q-1.....
- Q-2.....
- Q-3..... (etc.)

6. CORRELATION BETWEEN OCCUPATIONAL TASKS AND THE COMPONENTS OF VOCATIONAL QUALIFICATIONS

Table 2. Correlation between occupational tasks and the components of vocational qualifications

Occupational tasks	Components of vocational qualifications					
	Q-1	Q-2	Q-3	Q-4	(...)	Q-i
T-1						
T-2						
T-3						
(...)						
T-n						

7. EXTRA-VOCATIONAL QUALIFICATIONS

Table 3. Assignment of extra-vocational qualifications to the levels of qualifications

Level of vocational qualifications	Extra-vocational qualifications
SKILLS	
1	
2	
3	
4	
5	
KNOWLEDGE	
1	
2	
3	
4	
5	
PSYCHOPHYSICAL FEATURES	
1	
2	
3	
4	
5	

8. SPECIFICATION OF GENERAL VOCATIONAL QUALIFICATIONS, BASIC OCCUPATIONAL AND SPECIALIST QUALIFICATIONS

LEVEL 1 (similarly for levels: 2, 3, 4, 5)

GENERAL VOCATIONAL QUALIFICATIONS

- Skills
- Knowledge
- Psychophysical features

BASIC OCCUPATIONAL QUALIFICATIONS

- Skills
- Knowledge
- Psychophysical features

SPECIALIST VOCATIONAL QUALIFICATIONS

- Skills
- Knowledge
- Psychophysical features

1.4. Organization of research

The study of requirements for a given position in particular vocations for which the national vocational qualification standards were developed was conducted on the basis of questionnaires prepared by the participants of research teams developing standard descriptions.

The purpose of the research conducted in enterprises was to verify the list of occupational tasks, skills, knowledge, jobs and psychophysical features, prepared by the authors' teams on the basis of their expert knowledge.

The verified contents became the basis for the development of the set of 40 national qualification standards in selected vocations. The analysis was performed according to the modified methodology of PHARE '98 project, "*Analysis of training needs*". The proper application of the methodology was ensured by the experts who participated in the preparation of the first eight projects on vocational qualification standards and in related research projects.

The basic research team whose task was to conduct the questionnaire-based research and describe the vocational qualification standard usually consisted of:

1. An expert representing a vocational association, trade union or union of employers from the given sector and analyzed vocation.
2. An expert in the area of job analysis, vocational tasks and activities, labour psychology or vocational counselling – an expert in a given sector and analyzed vocation.

The work of the research teams was supervised by methodology consultants.

Efficient organization of research required the distribution of tasks and responsibilities as per the structure shown in Figure 3.

Authors were recruited primarily in business related organizations (organizations of employers and employees). It was also decided that the „ideal” author should also have the teaching, sociological and/or psychological background, and experience in developing documentation pertaining to vocation characteristics and descriptions. As in real life it is very hard to find an author who would possess all the above mentioned features, the authors' teams varied in terms of their members' competencies.

It was decided that one person – called the methodology consultant – is responsible for the methodology of standard development and is the leader of the authors' team. Consultants were chosen from among persons with documented qualifications and appropriate experience in developing vocation-related documentation (teaching syllabuses, guidelines for vocational training, descriptions of vocations, achievement tests – especially tests of the “work sample” type).

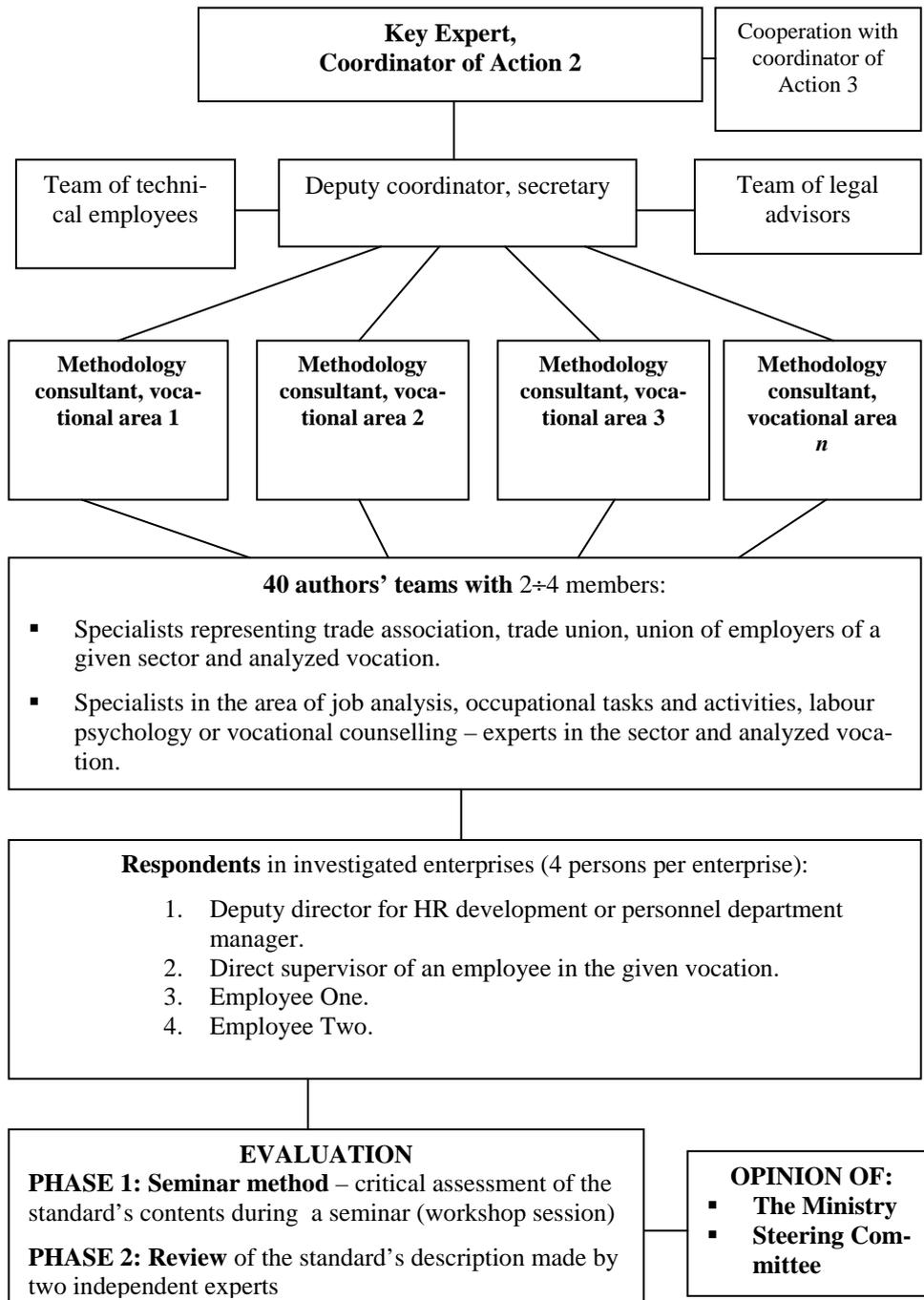


Figure 3. Research organization

The fundamental criterion for selecting the other team members was their documented and ongoing relationship with the vocation for which the qualification standard was being developed. It was also decided that the authors should have tertiary education, or secondary education coupled with many years of practice in the given vocation.

The number of analyzed enterprises from the whole country reached 552. There were 2001 persons involved in the implementation of Action 2, and specifically:

14 employees of the consortium office, 59 authors of standards, 14 methodology consultants, 82 reviewers, 122 evaluators, 1710 respondents in enterprises. These numbers match the planned scope of activities. The research conducted under Action no. 2 was the most extensive research of vocations ever conducted in Poland.

1.5. Procedure for development of standards

The research conducted in enterprises and the development of standards' description was divided into 7 phases.

PHASE 1 – Preparing the research questionnaire

Step 1 – members of the authors' team receive a sample questionnaire which they complete with the contents of the proposed descriptions of occupational tasks, divided into:

- **Technological/execution tasks** – refer to methods of actions undertaken on the job and at the position, but resulting from the enterprise's work technology. They are related to production technology, technology of providing services, or the manner of performing specific procedures and operations at the position.
- **Organizational tasks** - refer to the organization and planning of work pertaining to one's own job and position in relation to cooperating jobs and positions. They join the job description with the scope of responsibility and self-control.
- **Management and cooperation tasks** - refer to cooperation within a team of employees, leading a team, organization of the team work, cooperation with supervisors, contractors, suppliers and general business environment.
- **Tasks of quality control and assessment** - refer to self-control of the performed work or delivered services, controlling the work of subordinate employees, evaluating the quality of goods and services, responsibilities connected with procedures of the quality assurance system implemented in the enterprise.

This manner of procedure organizes the occupational tasks performed as part of a specific vocation, and helps the experts to isolate and structure vocational qualifications.

Step 2 – members of the authors' team match the specific tasks with skills, knowledge and psychophysical features necessary to perform them¹. The psychophysical features are divided into:

- sensory and motor abilities,
- skills,
- personality traits.

Step 3 – the authors' team completes the table with job names. The respondents' task is to specify which of the entries should be classified as typical for the vocation, and which ones are auxiliary. The standard should include typical positions. An individual approach to the decision about introducing a position/job into the standard is required in case of positions classified by respondents as „rarely seen/present”. It may happen that this position is related to qualifications specific for the vocation, and its rarity is due to the fact that very few employees perform work at this position. However, if this specialization is typical for the given vocation, the specialist position should be included in the standard.

PHASE 2 – Pilot research

- The questionnaire, completed with appropriate content, is evaluated by the authors' team by means of the pilot research method conducted in at least two enterprises. The research tests understanding of the contents by respondents, and analyzes the comments referring to the questionnaires' contents.
- After introducing the necessary changes into the questionnaire, an appropriate number of its copies is printed.

PHASE 3 – Obtaining consent for conducting research in enterprises

- Members of the authors' teams, using the relevant databases, select at least 10 enterprises to verify one standard. The selected enterprises become the area of target research. For methodological reasons, enterprises included in the pilot research should not be included in the target research area.
- The research sample should include small, medium-sized and large enterprises in more or less equal proportions. It should be borne in mind, however, that there are exceptions to this rule – not all vocations for which the qualification standards are developed, can be performed in enterprises of all sizes. For example, the vocation “manager of a small enterprise” applies to businesses with up to 10 employees. If there is a strong geographical diversity in performing a vocation, the research sample should be a nationwide

¹ For the formulation of psychophysical features, the authors used the publication of Anna Łuczak, *Psychological requirements for selection of persons to perform difficult and dangerous vocations*. Centralny Instytut Ochrony Pracy, Warszawa 1998.

one, assuring representation of these regions where the performance of this vocation may vary in terms of particular tasks.

- Leader of the authors' team writes a letter to the enterprise's director asking for participation in the research – and encloses a letter of recommendation from the Ministry of Economy, Labour and Social Policy.
- In the case of lack of approval for conducting the research, the selected enterprise should be replaced with a similar one.

PHASE 4 – Conducting the target research

- Members of the authors' team enter the enterprise and collect opinions, using questionnaires. Opinions should be obtained from at least 4 respondents in each enterprise which is subject to research.
- The respondents should include:
 - Director or deputy director, for example HR development director or manager of personnel department,
 - Direct supervisor of an employee in a given vocation (e.g. foreman or leader of a task force),
 - Employee One,
 - Employee Two.
- If it is not possible to reach four respondents in one enterprise (such a situation occurs in the case of vocations performed in small enterprises, which in extreme cases can include sole proprietorships), a total of at least 40 completed questionnaires should be obtained. In such a situation the number of entities which the researchers should reach with the questionnaires will increase.
- It was decided that from the methodological perspective it is best if the researchers conducting questionnaires in enterprises are members of the authors' team developing the standard. The direct contact of the author of the standard with the respondent may lead to a positive exchange of views and information that could enrich the description of the vocational qualification standard.
- In the event external interviewers are employed, members of the authors' team shall provide instructions and control the quality of the interviewer's work. Members of the authors' team are fully responsible for the questionnaire results obtained in this way.
- The questionnaires should be completed in the presence of the respondent. The interviewer should provide all explanations regarding the importance of particular entries. In the case of difficulties with direct contact, respondents may complete questionnaires on their own. However, in such a case a telephone contact with the respondents should be maintained to provide all necessary assistance and explanations at any time. It is assumed that the number of questionnaires completed individually by the respondents should not exceed 20% of all completed questionnaires.

- In the case of problems with finding the appropriate number of respondents at the management level, the opinion of experienced employees performing the given vocation for at least 5 years should be sought.
- Questionnaires completed by respondents must be always stamped by the enterprise in which the respondents work. Respondents should keep their personal data anonymous. Other data should be given in compliance with section IV of the questionnaire, “Respondent’s details”. The completed questionnaires should be filed and stored as evidence of conducted job research in enterprises.

PHASE 5 – Quantitative analysis of research results

- On the basis of the quantitative analysis of the research results, members of the authors’ team shall draw up the list of occupational tasks and the associated skills, knowledge and psychophysical features as well as the list of jobs/positions typical for the given vocation which should constitute part of the standard. In the case of respondents’ assessments referring to the following items: occupational tasks, skills, knowledge and psychophysical features, the arithmetical average for a four-degree evaluation scale should be used (scale: very important [4] – important [3] – not important [2] – useless [1]). An average of 2.9 or less is a criterion to exclude this element from the standard, as it means that the respondents consider this element as non-representative for the vocation. To evaluate the positions, a three-degree scale was used: typical for the vocation [3], auxiliary for the vocation [2], rarely seen [1]. The value of the computed arithmetical average of 2.5 or less of the respondents’ replies is a criterion to exclude this particular item from the vocational qualification standard.

PHASE 6 – Developing the standard’s description

- Members of the authors’ team analyze the qualitative results of questionnaires in order to isolate components of qualifications related to occupational tasks marked with the symbols: Q-1, Q-2, Q-3, etc. The analysis is summarized in a table presenting correlations between the occupational tasks and the components of vocational qualifications. In the subsequent step, members of the authors’ team assign the individual skills, elements of knowledge and psychophysical features to the five levels of qualifications and to four types of qualifications (extra-vocational, general vocational, occupational and specialist). During the preparation of the standard’s description, members of the authors’ team use all available vocation-related information and the respondents’ comments included in the collected questionnaires or voiced to the interviewers.

PHASE 7 – Evaluation of the standard’s description

Evaluation of the standard’s description should involve the widest possible social consultations before the standard’s approval. For this reason, the evaluation process consists of three steps:

Step 1 – Evaluation seminar

- Leader of the authors' team in cooperation with the component's secretary, organizes an evaluation seminar. All members of the authors' team and at least three external evaluators need to participate in the seminar. The evaluators are selected from among recognized authorities in the vocation to which the description of vocational qualification standard applies.
- During the seminar, the standard's description is subjected to productive criticism ("brainstorm" method). The seminar shall end with conclusions recorded in a memorandum signed by all the participants. The memorandum is the formal basis to introduce amendments to the standard.

Step 2 – Reviews

- The component's secretary sends the standard's descriptions amended after the seminar to independent reviewers (one standard is evaluated by two reviewers). The reviewers are selected by the component's secretary from among recognized authorities in the vocation to which the description of vocational qualification standard applies.
- After obtaining the reviews, the component's secretary communicates their contents to the leader of the authors' team who, in turn, in cooperation with other team members, enters the necessary amendments in the standard's description.

Step 3 – Approval by the beneficiary and the Steering Committee

- The key expert, together with the component's secretary and acting in agreement with leaders of authors' teams, determines the final versions of standards' descriptions and submits them for the approval by the beneficiary and the Steering Committee.
- Upon this approval, the standards' descriptions are deemed to be ready for the approval by the Minister of Economy, Labour and Social Policy, after which they can be published and made available to the public in the electronic database on vocational qualification standards.

1.6. Developing the research questionnaire

The research questionnaire consists of the following elements:

- I. List of occupational tasks broken down into:
 - technological/ execution tasks,
 - organizational tasks,
 - management and cooperation tasks,
 - tasks related to quality control and evaluation.
- II. The sets of skills, knowledge and psychophysical features corresponding to the individual tasks: Psychophysical features are presented in the following categories:

- sensory and motor abilities,
- skills,
- personality traits.

III. List of work positions for the vocation.

IV. Respondent 's details.

V. Enterprise details.

For the list of occupational tasks, skills, knowledge and psychophysical features, the respondents provided answers in a 4-degree scale – “very important – important – not important – useless”, placing “X” in the appropriate table box. Positions were evaluated in a 3-degree scale: „typical for the vocation – auxiliary for the vocation – rarely seen”. The respondents could propose their own descriptions of occupational tasks, skills, knowledge, psychophysical features and positions, in the blank spaces of the questionnaire left expressly for this purpose.

Frame no. 2 presents the design of the questionnaire.

Frame 2. Specimen of a research questionnaire

PART I. LIST OF OCCUPATIONAL TASKS

Please rate the importance of the occupational task by putting „X” in the appropriate column.

Item	Task category	Very important	Important	Not important	Useless
A. TECHNICAL/ EXECUTION TASKS					
A-1.					
A-2.					
A-3.					
etc.					
	Other (name)				
B. ORGANIZATIONAL TASKS					
B-1.					
B-2.					
B-3.					
etc.					
	Other (name)				
C. MANAGEMENT AND COOPERATION TASKS					
C-1.					
C-2.					
C-3.					
etc.					
	Other (name)				
D. TASKS OF QUALITY CONTROL AND ASSESSMENT					
D-1.					
D-2.					
D-3.					
etc.					
	Other (name)				

PART II. SET OF SKILLS, KNOWLEDGE AND PSYCHOPHYSICAL FEATURES CORRESPONDING TO INDIVIDUAL OCCUPATIONAL TASKS

Please rate the importance of the given skill, element of knowledge and psychophysical feature by putting „X” in the appropriate column.

Occupational task A-1:					
.....					
.....					
Item	SKILLS	Very important	Important	Not important	Useless
1.					
2.					
3.					
etc.					
	Other (name)				

	KNOWLEDGE	Very important	Important	Not important	Useless
1.					
2.					
3.					
etc.					
	Other (name)				

Item	PSYCHOPHYSICAL FEATURES	Very important	Important	Not important	Useless
I. Sensory and motor skills					
1.					
2.					
3.					
etc.					
II. Talents					
1.					
2.					
3.					
etc.					
III. Personality traits					
1.					
2.					
3.					
etc.					

(The table above should be continued for all occupational tasks from category A, B, C and D, proposed for evaluation by the team of experts)

the appropriate column.

•s, by putting “X” in

Item	Name of the Vocation	Typical for the vocation	Auxiliary for the vocation	Rarely seen
1				
2				
3				
etc.				

In the case of special conditions – regulatory, ordinal or competence-related – for performing work in the given position, please state the position’s name and the most important conditions for work in this position:

.....

PART IV. DATA OF THE RESPONDENT.

1. SEX: woman man
2. AGE:
 - a) 18–25.....
 - b) 26–40.....
 - c) 41 and older....
3. EDUCATION LEVEL:
 - a) primary
 - b) basic vocational
 - c) secondary vocational
 - d) general secondary
 - e) tertiary vocational (B.Sc., B.A. degrees)
 - f) tertiary – Master’s degree

4. **CURRENTLY HELD POSITION**
- a) Total length of work experience:
 - b) Length of work in the currently held position:

PART V. ENTERPRISE DETAILS

1. Type of business activity:

- a) production
- b) services
- c) trade
- d)
- e)

2. Number of persons working in the enterprise:

- a) 1-10 persons
- b) 11-50 persons
- c) 51-250 persons
- d) 251-500 persons
- e) more than 500 persons

Date of completing the questionnaire:

1.7. Research area

It was assumed that the research sample should include small, medium-sized and large enterprises in more or less equal proportions. In justified cases, this criterion can be modified – this applies to vocations performed usually or solely in small enterprises.

It was assumed that if the vocation occurrence is strongly diversified geographically, the research sample should be a nationwide one, including representation of these regions where the performance of this vocation may vary in terms of particular tasks. If, however, performance of occupational tasks does not depend on the geographical criterion, the authors' teams can select for their research enterprises located in a limited but rather broad area (one or two large cities, the area of a county, area of a whole province). In the case where the authors' team is developing standards for vocations of the same sector (the so-called related vocations), the research can be conducted simultaneously in the same enterprises, or some enterprises can be investigated repeatedly (but all the researched vocations must be properly represented among respondents from the given enterprise).

A total of 552 enterprises participated in the research. Of these, 86 took part in the pilot research, and the remaining 466 in the target research. The map (Figure 4) illustrates the distribution of enterprises in the individual provinces.

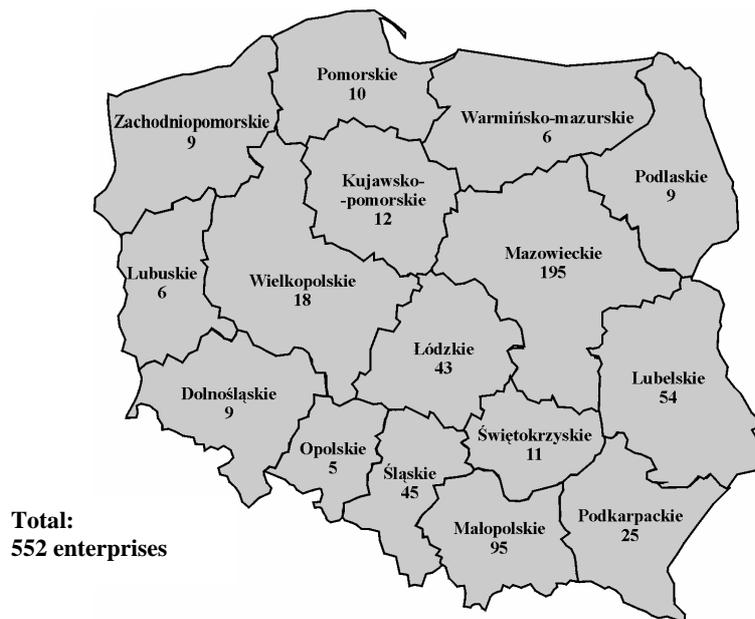


Figure 4. Geographical distribution of analyzed enterprises

The section below presents a detailed description of the research area.

1.7.1. Profile of the researched enterprises (target research)

OVERALL NUMBER OF ENTERPRISES PARTICIPATING IN TARGET RESEARCH:

- 466 enterprises

THE NUMBER OF ENTERPRISES PARTICIPATING IN TARGET RESEARCH, PER TYPE OF BUSINESS ACTIVITY:

- services	196
- production.....	65
- production and services	46
- fire brigade units.....	42
- services and trade	35
- trade	12
- production, services and trade.....	22
- state administration.....	12
- state-owned entity - of supervisory and control type....	10
- of services and training type.....	11
- of production and trade type.....	4
- foundations and associations	4
- academic and educational entity.....	2
- cultural institution.....	2
- self-government unit	2
- scientific and research entity	1

THE NUMBER OF ENTERPRISES PARTICIPATING IN TARGET RESEARCH PER NUMBER OF EMPLOYEES:

- 1-10 persons.....	77
- 11-50 persons.....	160
- 51-250 persons.....	161
- 251-500 persons.....	39
- more than 500 persons.....	29

1.7.2. Profile of respondents

TOTAL NUMBER OF PERSONS: 1710

SEX: female402 male..... 1 308

AGE:

- 18–25..... 107
- 26–40..... 799
- 41 and over.... 804

EDUCATION:

- primary 20
- basic vocational..... 220
- secondary vocational..... 514
- general secondary..... 87
- tertiary vocational (B.Sc., B.A. degrees) 233
- tertiary – Master’s degree 636

TOTAL PER POSITIONS:

- Top-level managers..... 454
- Middle-level managers..... 484
- Employees in the vocation 772

TOTAL LENGTH OF WORK EXPERIENCE:

- 1-2 years 58
- 3-5 years 174
- 6-10 years 339
- 11-20 years 494
- 21 years and more 645

LENGTH OF WORK IN THE CURRENTLY HELD POSITION:

- less than 1 year..... 27
- 1-2 years 245
- 3-5 years 469
- 6-10 years 442
- 11-20 years 421
- 21 years and more 106

1.8. Application of national vocational qualification standards

In the global approach to vocational education, four canons are clearly seen:

1. Accounting for the needs of the economy and the labour market in vocational education.
2. The need for combining personal development with vocational development.
3. Including the personal vocational and extra-vocational experiences into the syllabus of vocational education.
4. Development of cooperation between social and state partners in the planning and implementation of vocational education concept.

The canons form the common denominator for the developed concepts and models of vocational qualification standards. In all these approaches, the vocational standard has the role of a connector between the economy/ the labour market and the education system. The standard defines goals of vocational education, taking them from the economy and the labour market.

As recently as in 1998 it was believed that the vocational qualification standards have three basic functions, and these functions were associated solely with vocational education:²

1. **Assuring appropriate quality of vocational training** – the standards determine the vocational training quality and contribute to its assurance. They are recognized at the national level as a certain educational norm.
2. **Assuring the legibility/ transparency of qualifications** - the standards make the goals, contents and level of requirements related to vocational education transparent and verifiable in practice. This is important for both the educators and the learners. Potential employers are also interested in this transparency, as they want to know what the job-seeking person has learned so far.
3. **Enabling comparison of certificates and diplomas** – all teaching institutions must follow the standards. Therefore, it can be assumed that the certificates and level of acquired skills are comparable, irrespective of the school or training institution where the given person gained them.

It should be emphasised that outside the vocational education system, the vocational qualification standards can be useful for other social sub-systems, such as:

1. Job valuation,
2. Refund of training costs,
3. Selection and recruitment of employees,
4. Guarantee of delivering good quality of products and services,
5. Planning the individual and organizational development,

² M. Kunzmann, U. Laur-Ernst: *Development of standards in vocational education and training..* European Training Foundation, Torino 1998.

6. Vocational consulting and counselling,
7. Determining training requirements,
8. Conducting accreditation of the organization and certification of personnel,
9. Social security system,
10. System of labour legal protection.

The dilemma to solve is whether the vocational qualification standard is to be developed for a vocation, or for a specialty within a vocation. The borderline between the vocation and specialty is fluid, and depends on the distribution of labour in the economy and in the labour market. The modern approach solves this dilemma. The Committee on Training and Human Resource Development of the 91st International Labour Conference indicated the need to focus the research and scientific work **on the qualifications per se, and not on vocations**, interpreted in the traditional way.

The vocational qualification standards can have the following scope:

- a) nationwide (e.g. France, England, Ireland, Spain),
- b) regional (in countries of large territories, where the structure of regions is strongly varied, such as Germany or the Russian Federation),
- c) limited to individual sectors (e.g. the Netherlands, France),
- d) special – regulated by various chambers, associations and unions. In this case, the standards apply only to the given organization's influence area.

The above defined type of validity may differ within individual vocational standards. For instance, 70% of the standard can be recognized nationwide, while the remaining 30% can be shaped in any manner, in line with regional economic structure or situation in the labour market. Such an approach is applied to allow the standards react in a flexible and varied manner to a broad spectrum of requirements. It seems that a country like Poland should have a single national qualification standard for a specific vocation. This standard should be periodically updated, depending on the needs and changes in the given vocation.

Among the EU countries, the prevalent opinion is that vocational standards should be valid legal regulations, therefore the state should play a fundamental role in the development and recognition of qualifications standards. It may also be held responsible for their application. This sole responsibility of the state was partly decentralized in many EU Member States, by including the social partners (employers' and employees' organizations, chambers, associations, foundations) in the development of and compliance with norms contained in the standards.

It should be emphasised that a unified model of vocational qualification standards exists neither in Europe nor anywhere else. So far there is general agreement on one issue – that the vocational qualification standards should act primarily as “connector” between the area of education and the area of the economy/labour market, and should serve as an instrument for international comparability and recognition of certificates and qualification diplomas. It would also be good if the model was universal enough to be used in the largest possible number of social and economic sub-systems.

1.9. Conclusions and recommendations

On the basis of experience gained in the course of research of vocational qualification standards and taking into account the requirements of individual positions in enterprises, the following conclusions and recommendations can be formulated:

1. The vocational qualification standard should be a document enforced by law. Social partners interested in the quality of vocational work should participate in its development. The development of the standard should take place under the supervision of and subject to the approval of the state, represented by a coordinating institution (or institutions) with a broad range of competencies.
2. The vocational qualification standard is a norm describing employee's qualifications necessary to perform typical occupational tasks, in compliance with the current requirements related to typical positions in a given vocation.
3. The vocational qualification standard should not contain any elements of forecasts, but only these skills, elements of knowledge and psychophysical features that are currently required in the labour market (it is assumed that the decision on updating provisions of the standard should be made following a justified motion of interested parties).
4. It is possible to replace the vocational training program framework with the vocational qualification standard, but this issue should be left open to be decided by the Ministry of Education.
5. Similarly, the Central Examination Board will make its own decision whether and in what manner it would use the vocational qualification standard in the external exams testing the outcome of vocational education and vocational qualifications.
6. An open problem to be solved by the interested parties, is the issue of using the vocational qualification standard by other social and economic subsystems (e.g. social insurance, granting compensation on account of the work performed, job valuation and wages scale, assessment of occupational risk and risk of occupational diseases, etc.).
7. Respondents have indicated that the questionnaire is too extensive and its completion requires a lot of time (the average time of completing the questionnaire amounted to 1 hour). The questionnaire should be shortened by making the description of the standard less detailed and resigning from defining the psychophysical features separately for each occupational task.
8. In the next edition of research, a modification of the questionnaire contents referring to psychophysical features should be considered. Most respondents believed that psychophysical features should be determined for the whole vocation, and not for individual occupational tasks. An obstacle in accepting such an opinion of the respondents may be the trend visible in oc-

cupational research – departing from analyzing vocational qualifications for the whole vocation in favour of analyzing qualifications associated with particular types of work, or even individual positions.

This is a modern, more flexible approach. Such an approach is also conducive to modular training. However, at this stage of developing vocational qualification standards in Poland, Action 2 experts are in favour of defining psychophysical features for the whole vocation, and not for individual occupational tasks (an intermediate solution can be based on defining psychophysical features separately for four groups of occupational tasks: technological, organizational, related to management and cooperation, quality control and assessment).

9. The geographical criterion for selecting the research sample should not be imposed upon the research teams, as it is of key importance for a few vocations only.
10. It should be pointed out that pilot research must be conducted by means of the direct interview technique.
11. The respondents usually preferred to complete the questionnaire at home, as at work they were too busy with their regular duties. Thus, contact with the interviewer was mostly limited to receiving exact instructions before completing the questionnaire. However, about 40% of the respondents completed the questionnaire in the presence of the interviewer.
12. There are no grounds to state that quality of the questionnaires completed in the absence of interviewers is worse – the quality of the questionnaire depends solely on the respondent's quality.
13. The proposed model of organizational and legal solutions which introduce the vocational qualifications standards should take into account the experience derived from the organization of authors' teams, specifically:
 - development work on the subsequent vocational qualification standards should follow the “pyramid” scheme – persons with development experience pass it to an increasing number of persons who develop standards for the first time;
 - experienced staff, who participated in the previous rounds of work, should be involved in the development of subsequent qualifications standards - this will assure the necessary flow of knowledge and experience;
 - development work on the vocational qualification standards should be coordinated by a single institution, preferably a scientific and research one. This will guarantee uniformity of the applied methodology;
 - stability of the development methodology is extremely important – the models that are adopted should remain in force for at least a decade. This is a necessary condition for the development and absorption of the standards by the vocational community;

- in the future, work on development of vocational qualification standards should be initiated by associations and unions of employers and employees – this will determine their involvement in the development work and indirectly involvement of enterprises in the questionnaire research;
- the questionnaire research in enterprises should be based on a permanent group of cooperating enterprises, especially as the standard should be updated, on average, every three years. Lack of enterprise involvement in the questionnaire research is an important obstacle to the development of qualification standards – if it were not for individual contacts of the members of authors' teams and their institutions with the various enterprises, conducting the research would have been very difficult;
- about a year is needed to develop a single qualification standard. Assuming that work will be conducted under time pressure, and that the previously gained experience will have a positive influence on the work of the authors' teams, this period could be reduced to 9 months. It should be borne in mind that haste leads to a lower quality of end products. Ample time must be allowed for consultations with social partners (associations of employers and employees). This time cannot be precisely estimated, and it should not be shortened at the expense of reaching the consensus. The approval of social partners for the application of the standard determines its usefulness and influence.

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2. Information system on the national vocational qualification standards

*Wojciech Karsznia
Jerzy Dobrodziej*

The development of the information society, and the resulting snowballing increase of knowledge makes it necessary to constantly update, sort, process and store this knowledge, and to adapt it to the goals of contemporary educational systems. Educational institutions, teachers and learners increasingly frequently use the modern information and communication technologies. The resources collected in various databases appear to offer a big chance for the popularization of information, development of staff's competencies and for assuring appropriate quality of education services. One of such resources is the national system of information on the national vocational qualification standards developed in the course of Phare 2000 Project "National Vocational Training System".

The database of national vocational qualification standards includes:

- an Oracle database with selected information on the standards,
- a set of files with full contents of the standards, on an FTP server.

The system is managed and updated by the Labour Market Department of the Ministry of Economy and Social Policy. It is addressed in particular to persons who are interested in using the national vocational qualification standards (for example, to design curricula for vocational education and training, to determine standards for examination requirements, for the purposes of job valuation, recruitment of personnel, etc.).

The data presentation interface is designated for all users of the Internet, and enables browsing the databases' contents with the use of any Web browser.

Persons who register in the system (registration is free of charge) receive from the Ministry an access code, which enables them to browse basic information on vocational qualification standards, and to download files containing full versions of documents. Those who do not register will be only able to browse the commonly accessible information without the possibility to download electronic files.

2.1. Assumptions for the development of the database on vocational qualification standards

According to the database protection law of 27th July 2001 ¹, “*the term database means a set of data or any other materials and element, collected according to a pre-defined system or method, individually accessible in any way, including electronic means which require a significant, in terms of quality or quantity, expenditures to prepare, verify or present its contents.*” This definition was used to design an IT system including a database that would service the set of information on vocational qualification standards.

The database contains the following elements:

1. Code of vocation/ specialty (according to the classification currently in force),
2. Date of the standard’s development and approval,
3. Contents of the standard (full downloadable version and abbreviated version to browse).

The developed system enables updates of the data, and the enlargement of database resources in the future.

Users of the system are divided into two groups: internal users (authorized employees of the Ministry) and external users - any individuals or institutions with access to the Internet. Depending on the type of user, the service and access to data is provided according to two methods:

- via a client-server application for internal users,
- via the Internet and Internet browsers for external users.

External users of the IT system have the option to:

- browse selected information on vocational qualification standards available in the database,
- download and printout a full version of the description of vocational qualification standards.

2.2. The database information scope

According to the project’s assumptions, the developed IT system enables the Ministry of Economy, Labour and Social Policy to manage the information on vocational qualification standards in order to disseminate them as part of educational services and lifelong learning of adults - including the unemployed.

External users have access to the database via the Internet, using Web browsers. The database on vocational qualification standards enables the search

¹ Journal of Law dated 9th November 2001, no. 128, item 1402.

and receipt of the following information (this list is not exhaustive, as only the downloadable file is the full version of the standard):

1. **Introduction** (general information, common for all standards).
2. **Definitions** (common for all standards).
3. **Basic data on the standard**, including: vocation name, vocation code (according to the classification of vocations and specialties), date of entry into the register, date of last update, number of register entry, number of standard's version, list of standard's authors, list of standard's reviewers, synthetic description of the vocation and the list of legislative acts and regulations which form the basis for performance of the given vocation.
4. **List of components of the vocational qualifications**, including: code and name of the qualification's component.
5. **List of occupational tasks**, including: code and contents of the occupational task.
6. **List of positions**, containing: position's code and name, and the level of vocational qualifications required for the position.

2.3. Rules of data access for external users

Rules of data access for external users depend on the user's status. These rules are presented in Figure 1.

Unregistered external users.

The database will be generally accessible via the Internet. Users from this group can only browse and search the generally accessible information. Unregistered users are not allowed to download files with full versions of vocational qualification standards from the FTP server.

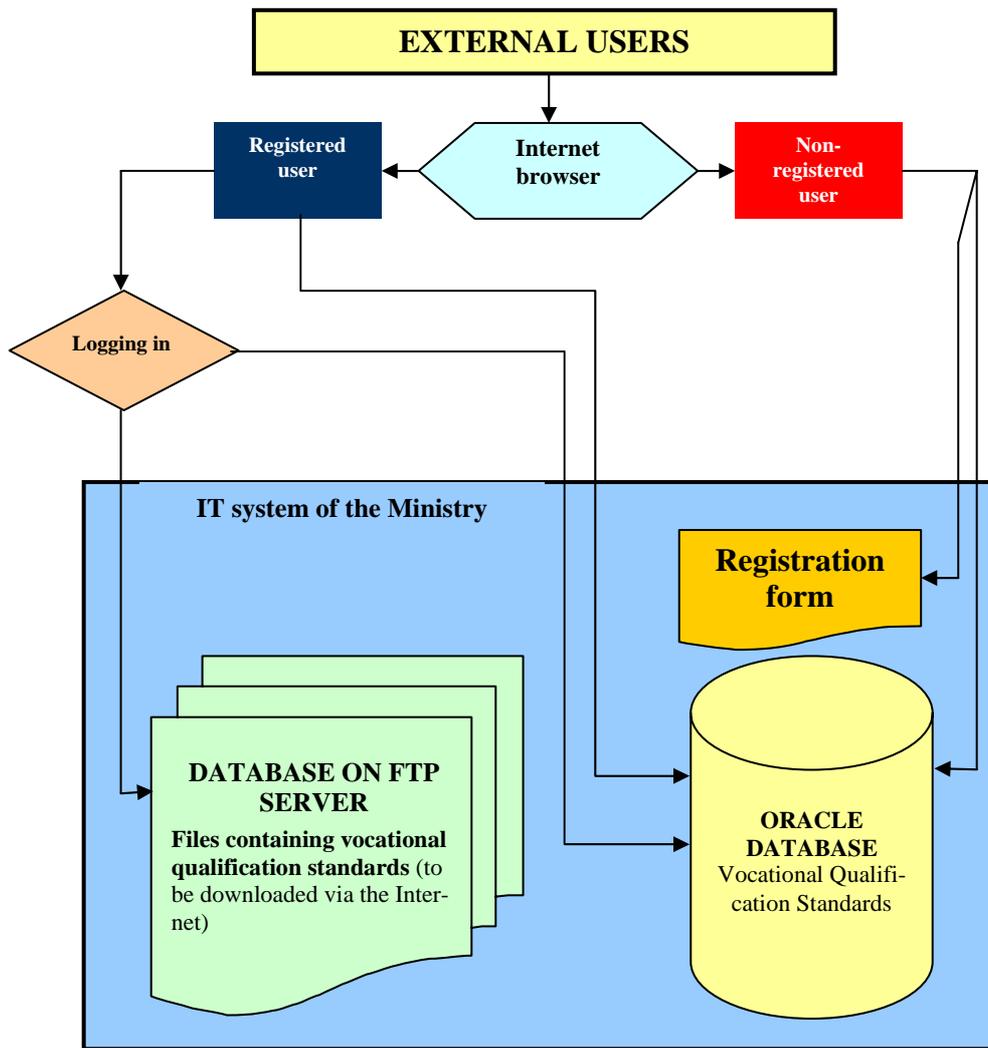


Figure 1. Diagram for organizing access to database on vocational qualification standards

Registered external users

Users who are registered in the database have the same rights as unregistered users, and additionally the opportunity to download files with the full contents of vocational qualification standards from the FTP server. For this group of users, access to database must be authorized. Each user, before starting to use the database, will have to log in, providing the account name and password. This

procedure requires the user to register with the database. Registration of users, allocation of accounts and authorization is done by database administrators – authorized employees of the Ministry of Economy, Labour and Social Policy. For the external users, special registration forms will be provided on the database website (see Figure 2).

Figure 2. Form for user's registration – fragment of the Internet interface

Procedure for registration of users and file download

Procedure for registration of users consists of the following steps:

1. Filling the registration form, available for all users at the Website (Fig. 2) and sending it via the Internet to the database. The Ministry, following verification of registration data and checking their credibility (including a form sent by traditional mail – see item 2 of the procedure), sends to the user confirmation of registration with the account name and access code, to the user's email address or via regular mail.
2. Downloading the registration form from the website and sending the completed form by traditional mail, with the signature of the authorized person and the institution's stamp to the Ministry. The Ministry, upon registering the user in the database, sends confirmation of registration with the account name and access code, to the user's email address or via regular mail.

The procedure for downloading files with the full content of vocational qualification standards includes selecting (searching) the requested standard in the database, and next selecting the file download command from the website. When this command is selected, a file download window opens and the download process to the user's computer starts via the FTP protocol. As these files are "packed", they must be unpacked before opening with the appropriate software (it is assumed that files would be packed in the ZIP format, as the program for packing in this format can be downloaded from the Internet, free of charge).

2.4. User interface

Entering the appropriate address in the Web browser enables connection to the server and database. The target address of the main website with databases will be defined by the relevant operator providing that service on behalf of the Ministry.

The main page of the user's interface is shown in Figure 3.

PHARE 2000 Krajowy System Szkolenia Zawodowego
Bazy danych

Standardy kwalifikacji zawodowych

Kryteria wyszukiwania

Parametr	Wartość
1 Nazwa zawodu	<input type="text"/>
2 Kod zawodu	<input type="text"/>
3 Data wpisu do rejestru	większa od <input type="text"/> <input type="text"/> <input type="text"/>
4 Data ostatniej aktualizacji	większa od <input type="text"/> <input type="text"/> <input type="text"/>
5 Numer wpisu do rejestru	<input type="text"/>
6 Nazwisko autora	<input type="text"/>
7 Nazwisko recenzenta	<input type="text"/>
8 Nazwa składowej kwalifikacji	<input type="text"/>
9 Nazwa zadania zawodowego	<input type="text"/>
10 Nazwa stanowiska pracy	<input type="text"/>

Jako wynik wyszukiwania wyświetl

Standardy Składowe kwalifikacji Zadania zawodowe Stanowiska pracy

Szukaj Wyczyść

Liczba odwiedzin **1295**

Figure 3. Main page of the database on vocational qualification standards

Hyperlinks placed on the main page enable access to the following pages:

1. **Login** – move to the login window. Logging in is not obligatory – it is not required if the user wants only to browse the database content.
2. **Standards' database** – move to pages which enable browsing the database on vocational qualification standards.
3. **Other databases on similar subjects** – move to page containing a list of hyperlinks to databases covering similar areas (e.g. database on modular programmes for vocational training).

The main page of the database on vocational qualification standards contains a form to define search criteria. If the required criteria are not entered, after clicking “search” the bottom part of the page will show a list of all standards in the database. The content of the list is limited to 30 items. To see subsequent pages, use navigation buttons located under the list. The items of the list are hyperlinks to the related standards. The content of the database on the given item is displayed after clicking the appropriate hyperlink from the list.

The form enables the user to define advanced search criteria, according to random combination of the following criteria (Figure 3):

- vocation code,
- vocation name,
- date of entry into the register,
- date of update,
- number of entry into the register,
- standard's authors,
- standard's reviewers,
- name of the qualification's component,
- name of the position,
- name of the occupational task.

Figure 4 shows a fragment of the page containing data on the vocational qualification standard. The hyperlinks placed in the upper part of window (under the printer icon) enable quick access to the selected page area. Clicking the printer icon starts the page printout. Downloading of the standard file commences after clicking the “download data” hyperlink. This command is not visible for users who are not logged into the database.

The database on the vocational qualification standard developed under the Phare 2000 programme has an open architecture. This enables adding new elements and functions in the future, depending on the demand from the users of the IT system.

PHARE 2000 Krajowy System Szkolenia Zawodowego
Bazy danych

Dostępne funkcje

- Pomoc
- Strona główna
- Logowanie
- Baza standardów
 - Wprowadzenie
 - Słownik pojęć
- Baza programów
- Rejestracja
- Instytucje
- Publikacje
- Statystyki

Standard kwalifikacji zawodowych
Pośrednik pracy

Opis zawodu	Podstawy prawne	Opis stanowisk	Wykaz stanowisk	Składowe kwalifikacji	Zadania zawodowe
Kod zawodu	342301				
Data wpisu do rejestru	2003-08-29				
Data ostatniej aktualizacji	2003-08-29				
Numer wpisu do rejestru	R-3				
Numer wersji standardu	W-1				
Autorzy	* mgr Zofia Sepkowska - Wojewódzkie Centrum Kształcenia i Doskonalenia Praktycznego Nauczycieli w Łodzi, * mgr Elżbieta Czarnul - Kierownik Centrum Informacji i Planowania Kariery Zawodowej przy Urzędzie Pracy w Łodzi, * mgr Renata Tadeusiak - Uniwersytet Łódzki, Katedra Socjologii Przemysłu; konsultant firmy Beaver Doradztwo Personalne				
Recenzenci					
Syntetyczny opis zawodu	<p>Pośrednictwo pracy rozumiane jako "udzielanie pomocy osobom bezrobotnym i poszukującym pracy w uzyskaniu odpowiedniego zatrudnienia oraz pracodawcom w znalezieniu odpowiednich pracowników" (Ustawa o zatrudnieniu i przeciwdziałaniu bezrobociu (Dz. U. Nr 5 z 1997 r., poz. 128 - tekst ujednolicony) określa w sposób racjonalny instytucje realizujące to zadanie. Takimi instytucjami, dla których generalnym zadaniem jest świadczenie usług z tego zakresu są powiatowe urzędy pracy i w nich też występuje największy poziom zatrudnienia osób w zawodzie pośrednika pracy. Na podstawie przeanalizowanych podstaw prawnych, literatury oraz bezpośrednich rozmów z osobami realizującymi zadania z zakresu pośrednictwa pracy uznano, że pośrednik pracy to osoba wykonująca zadania związane z udzielaniem pomocy w zatrudnieniu osobom poszukującym pracy oraz pracodawcom doborze pracowników o wymaganych przez nich kwalifikacjach</p>				

Figure 4. Sample page containing data on the vocational qualification standard (fragment)

Bibliography

- Reports from the implementation of Phare 2000 Project “National Vocational Training System”, Ministry of Economy, Labour and Social Policy, Warsaw 2003.
- Test version of the IT system, developed under the Phare 2000 Project “National Vocational Training System”.

3. Examples of Polish vocational qualification standards

Forty vocations have been selected for the development of vocational qualification standards. The basis for the selection was the needs analysis of the domestic labour market and consultations with ministers responsible for individual vocations as well as with representatives of employers' and employees' organizations (Table 1).

Table 1. List of the vocations for which the vocational qualification standards were developed.

Item	VOCATIONS
1.	Assembler of building structures (712903)*
2.	Mason (712102)*
3.	Fitter of sanitary installations and equipment* - <i>trained vocation covering elementary group (7136)</i>
4.	Fitter of municipal services networks* - <i>trained vocation covering elementary group (7137)</i>
5.	Floor layer (713203)*
6.	Finishing works technician in the construction sector (713901)*
7.	Fitter of building insulation (713401)*
8.	Fitter – installer of technical equipment in rural constructions (723310)*
9.	Fitter of gas installations (713602)*
10.	Carpenter (742204)*
11.	Locksmith (722204)*
12.	Building technician (311204)*
13.	Land surveying technician (311104)*
14.	Highway engineering technician (311206)*
15.	Environmental engineering and land melioration technician (311208)*
16.	Landscape architecture technician (321202)*
17.	Telecommunication technician (311402)*
18.	Assistant (technician) in postal and telecommunication services* - <i>trained vocation covering elementary group (4213)</i>
19.	Fitter of telecommunication networks and equipment* - <i>trained vocation covering elementary group (7252)</i>
20.	Information technology technician (312102)*

21.	Occupational safety and hygiene specialist (214923)
22.	Labour inspector (247104)
23.	Fireman (515101)*
24.	Fire science technician (315104)*
25.	Fire science engineer (214910)*
26.	Environment protection inspector (315204)
27.	European integration specialist (247902)
28.	Nurse* - <i>trained vocation Nurse – covering the whole elementary group (3231)</i>
29.	Mechatronics technician (311990)*
30.	Organizer of tourist services (341401)* - <i>trained vocation: Tourism services technician</i>
31.	Marketing and sales specialist (241912)
32.	Cosmetic services technician (514107)*
33.	Manager of small enterprise - <i>according to classification, this is an occupation covering the intermediate group: Managers of small enterprises (131)</i>
34.	Sales representative (regional representative) (341503)
35.	Welder - <i>trained vocation covering elementary group (7212)</i>
36.	Course Lecturer (educator, trainer) (235910)
37.	Road surface layer (712404)
38.	Painter and wallpaper-layer (714103)*
39.	Computer graphic artist (311801)
40.	Operator of NC machine tools (821107)

(*) – means that the vocation is covered also by classification of vocations in vocational training

Further sections of this study present the description of four selected national vocational qualification standards:

1. European integration specialist (247902),
2. Nurse (3231),
3. Mechatronics technician (311990),
4. Mason (712102).

1.

Qualification standard for the vocation of

EUROPEAN INTEGRATION SPECIALIST (247902)

Authors:

- **Beata Poteralska, Ph.D.**
Institute for Sustainable Technologies in Radom
- **Jolanta Religa, M.Sc.**
Institute for Sustainable Technologies in Radom

Methodology consultant:

- **Michał Butkiewicz, Ph.D.**
„Edukacja i Praca” Research and Development Centre in Warsaw

Reviewers:

- **Tadeusz Chabiera, Ph.D.**
National School of Public Administration
- **Robert Polkowski, M.Sc.**
European Commission – Representation in Poland
EU Information Centre in Warsaw

External evaluators:

- **Krzysztof Kafel, Ph.D.**
Department of Vocational and Continuous Education of the Ministry of National Education and Sports
- **Urszula Budzich-Szukała, M.Sc.**
“Fundusz Współpracy” Foundation in Warsaw
- **Mirosław Grewiński, Ph.D.**
Pedagogical University of the Polish Association for Adult Education in Warsaw

1. Legal basis for performance of the vocation¹

- The act dated 18th December 1998 on civil service (Journal of Law of 1999, no. 49 item 483, with later amendments).
- The act dated 22nd March 1990, on local self-government employees (Journal of Law of 1990, no. 21 item 124, with later amendments).
- The act dated 16th September 1982, on employees of state offices (Journal of Law of 1982, no. 31 item 214, with later amendments).
- Regulation of the Chairman of the Council of Ministers dated 28th September 1999 on the manner of conducting recruitment in civil service (Journal of Law of 1999, no. 79 item 894, with later amendments).
- Regulation of the Chairman of the Council of Ministers dated 29th October 1999 regarding the definition of clerical positions, required professional qualifications, ranks of civil servants, multipliers for determining remuneration, and detailed rules for determining and disbursing other benefits to which members of the civil service are entitled (Journal of Law of 1999, no. 89 item 996, with later amendments).
- Regulation of the Chairman of the Council of Ministers dated 6th May 2002 on detailed rules for civil servants' evaluation (Journal of Law of 2002, no. 69 item 633).

2. Synthetic description of the vocation

The European integration specialist possesses in-depth knowledge of European history, culture and traditions, social and political background of European integration, the European Communities' structure, as well the legal and economic aspects of their functioning – including the common policies and decision-making procedures of the EU. The main tasks performed by the specialist include: bilateral and multilateral cooperation with institutions in the EU Member States on the implementation of *acquis communautaire*, preparation, participation in and supervision of various projects and programmes, and drafting of contracts. The specialist manages the EU programmes, participates in drafting of applications for projects (co)financed from the EU funds and implementation of such projects, including their monitoring, evaluation and reporting. He/she provides information and consulting services, organizes and delivers training, seminars or conferences that prepare employees of government and self government offices, non-government institutions and other legal persons and individuals to fully participate in the implementation of the European policy, acquisition of the EU funds and cooperation with EU institutions.

¹ Legal status as of 1st June 2003

The principal locations for the specialist's employment include: public administration bodies (government and self government), national and international institutions and organizations, bodies of the European Communities, non-government organizations, European information centres, research and educational institutions; consulting, production and service companies; cultural establishments; mass media; publishing houses, etc.

The European integration specialist may work independently, as a self-employed person. He/she has the opportunity to work abroad, including institutions of the European Union. He/she can assume managerial positions – coordinating, supervising and being responsible for the work of subordinate employees.

The work of the European integration specialist can be performed individually or in a team; it is mainly performed in the office and often requires the use of a computer. An unconditional requirement for professional performance in such position is fluency in at least one foreign language – usually English. Knowledge of other official languages of the European Union is also recommended (mainly French). Due to a significant number of contacts with others, the specialist must be able to establish and maintain contacts easily. The ability to appear and speak in public is also recommended. Important psychophysical features, useful in this profession, include: imagination, independent and critical thinking ability, ability to understand and analyze social, political, legal and economic issues, as well as stress resistance and willingness to constantly improve one's skills.

Special legal requirements regarding the profession of the European integration specialist refer only to officials in the state administration units: employees of government and self government offices, and members of the civil service. Their legal status is regulated by the following laws:

- 1) *The law dated 16th September 1982, on employees of government offices* – identifies the basic requirements for candidates for positions of state officials. It states that such persons must complete administrative internship before undertaking such work, and that they are subject to periodic assessment in the course of their work, checking their usefulness and quality of work.
- 2) *The law dated 22nd March 1990, on local self government employees* – identifies basic requirements for self government employees. There are no additional requirements regarding specialist qualifications or entitlements.
- 3) *The law dated 18th December 1998 on civil service* – regulates the rules for creation of the civil service corps – a cadre of specialized, apolitical officials; determines rules of access to civil service, rules for its organization, functioning and development.

This cadre includes civil service employees working on the basis of an employment contract, and civil service officials who are nominated. The conditions to apply for nomination in civil service are set forth in the above named act.

Only a person who already has the status of a civil service employee can become a civil service official, upon successful completion of the qualification procedure. Detailed rules of the qualification procedure in civil service as well as required professional qualifications are set forth in the Regulation of the Chairman of the Council of Ministers dated 28th September 1999, and Regulation of the Chairman of the Council of Ministers dated 28th October 1999.

3. Positions

Table 1. Assignment of positions to the levels of vocational qualifications

Level of vocational qualifications	Typical positions	COMMENTS
1	*)	
2	*)	
3	*)	
4	<ul style="list-style-type: none"> – International cooperation specialist – International programmes specialist – European integration specialist – Project manager – Advisor – Consultant – Training specialist – Course lecturer – Specialist for financial and accounting settlements 	
5	<ul style="list-style-type: none"> – Director (of an office, division, department, bureau) – Deputy director (of an office, division, department, bureau) – Manager (of a division, department, bureau) – Management Board President – Programme coordinator – Chief specialist 	

*) *Not identified in the research.*

4. Occupational tasks

- T-1. Collection and update of data regarding economic, social and legal aspects of the functioning of the European Union and its individual Member States.
- T-2. Development of information materials on the European Union and its individual Member States including comparative analyses of the situation in Poland.
- T-3. Preparation of documents and materials necessary for cooperation with institutions from the Member States and from outside the European Union and their storage.
- T-4. Organization of training sessions, speeches, consultations for employees of the parent institution and/or external recipients on the economic, social and legal aspects of the functioning of the European Union, on integration processes and cooperation with Member States and non-EU countries.
- T-5. Development of the contents, and delivery of training and seminars for employees of the parent institution and/or external recipients in areas related to the economic, social and legal aspects of the functioning of the European Union, integration processes and international cooperation.
- T-6. Provision of information and consulting services for individuals, government and non-government institutions on the cooperation with institutions from the EU Member States and from outside the European Union.
- T-7. Participation in the development of application, implementation, reporting and financial settlement of undertakings co-financed from the EU resources.
- T-8. Participation in domestic and international meetings (seminars, conferences, workshops, expositions, fairs, etc.) regarding various aspects of the EU functioning, integration processes and cooperation with the Member States and non-EU countries.
- T-9. Organization of undertakings fostering the idea of European Integration (e.g. cultural events).
- T-10. Management of the implementation of international projects and/or projects (co)financed from the European Union funds.
- T-11. Monitoring of implemented undertakings.
- T-12. Analysing effectiveness of implemented undertakings, from the quantitative and qualitative perspective.
- T-13. Cooperation with other persons (associates and employees of external institutions), with government and non-government institutions from the EU Member States and from outside the EU.

- T-14. Organization of one's own work, operations of the institution or unit managing or supporting cooperation with the institutions from the Member States and from outside the European Union.
- T-15. Management of organizational units engaged in cooperation with the EU Member States and non-EU countries, including networks of institutions.
- T-16. Supervision of the work of subordinated persons, institutions or organizations dealing with the European integration issues and cooperation with the Member States and non-EU countries.

5. Components of vocational qualifications

- Q-1. Providing consultations and information on the European integration issues.
- Q-2. Organization and delivery of training related to the European integration issues.
- Q-3. Preparation of projects co-financed from the European Union resources.
- Q-4. Management of projects co-financed from the European Union resources.
- Q-5. Monitoring and evaluation of projects and undertakings organized within the European Union.

6. Correlation between occupational tasks and components of vocational qualifications

Table 2. Correlation between occupational tasks and components of vocational qualifications

Occupational tasks	Components of vocational qualifications				
	Q-1	Q-2	Q-3	Q-4	Q-5
T-1	x	X	x	x	x
T-2	x	X	x		
T-3	x		x	x	x
T-4	x	X	x		
T-5		X	x		
T-6	x	X			
T-7			x	x	x
T-8	x	X	x	x	x
T-9	x	X	x	x	x
T-10			x	x	x
T-11	x	X	x	x	x
T-12		X	x	x	x
T-13	x	X	x	x	x
T-14	x	X	x	x	x
T-15			x	x	x
T-16			x	x	x

7. Extra-vocational qualifications

Table 3. Assignment of extra-vocational qualifications to vocational qualification levels

Level of vocational qualifications	Extra-vocational qualifications
SKILLS	
1	<ul style="list-style-type: none"> – Applies the basic rules of occupational safety and hygiene, fire prevention and protection. – Adheres to the rules of ethics.
2	<ul style="list-style-type: none"> – Applies the basic rules of natural environment protection – Discerns the fundamental rights and obligations of employers and employees. – Communicates with other people. – Performs basic calculations. – Provides pre-medical aid.
3	<ul style="list-style-type: none"> – Obtains and interprets information. – Draws up basic letters and documents. – Solves problems and makes decisions within his/her own scope of competencies. – Formulates his/her thoughts in a clear and understandable manner. – Operates the computer.
4	<ul style="list-style-type: none"> – Manages teams. – Motivates employees. – Adheres to the rules of social coexistence. – Understands the social and economic processes.
5	<ul style="list-style-type: none"> – Perceives the threats and opportunities related to changes in the work environment, social and economic life. – Introduces innovative solutions.
KNOWLEDGE	
1	<ul style="list-style-type: none"> – Regulations on occupational safety and hygiene, fire protection and prevention. – Rules of ethics.
2	<ul style="list-style-type: none"> – Rights and obligations of employers and employees. – Rights and obligations of citizens. – Techniques for obtaining information. – Techniques of interpersonal communication. – Rules and methods for providing pre-medical aid.
3	<ul style="list-style-type: none"> – Rules of drawing up letters and documents. – Rules of using a computer. – Regulations on environment protection.
4	<ul style="list-style-type: none"> – Problem-solving methods.

	<ul style="list-style-type: none"> – Rules of effective team management. – Fundamental social and economic processes.
5	*)
PSYCHOPHYSICAL FEATURES	
1	– Ability to adhere to ethical standards.
2	<ul style="list-style-type: none"> – Ability to work in a team. – Ability to think logically and critically. – Independence. – Responsibility. – Emotional resistance. – Good communication skills. – Self-control. – Imagination.
3	– Ability to adapt to changes.
4	<ul style="list-style-type: none"> – Continuous learning ability. – Creative thinking. – Ability to divide attention.
5	*)

*) *Not identified in the research.*

8. Specification of qualifications: general vocational, basic occupational and specialist for the vocation

NOTE: The higher-level qualifications contain lower level qualifications

LEVEL 1

– *Not identified.*

LEVEL 2

– *Not identified.*

LEVEL 3

– *Not identified.*

LEVEL 4

General vocational qualifications

Skills

- Fluency in English.
- Obtains and sorts information, including the use of electronic databases.

- Analyzes and interprets information, formulates conclusions.
- Operates selected computer software supporting the process of obtaining, collecting, selecting and processing of information.
- Cooperates with domestic and foreign public administration units, research and scientific entities, non-government institutions.
- Makes decisions.
- Formulates written and oral presentations in a clear and understandable manner.
- Reads and understands documentation, official letters and legislation.
- Carries on correspondence with partners from the EU Member States and outside the EU.
- Operates audiovisual equipment.

Knowledge

- Rules of the European Union functioning – social, economic and legal aspects.
- Integration processes of the European Union.
- Economic, social and political situation of Poland.
- Rules and forms of cooperation with the EU Member States and non-EU countries.
- International programmes and initiatives – goals, priorities, assumptions, financing rules, documentation.
- European Union Funds – goals, priorities, rules of using, procedures, documentation.
- Domestic and international institutions operating in the area of cooperation within and outside the European Union, their competencies and tasks.
- Domestic and international information services, databases and websites of institutions operating in the area of cooperation within and outside the European Union.
- Selected aspects of legislation (e.g. administrative law, financial law).
- Decision-making process.
- Rules of formal and informal correspondence, including correspondence in foreign languages.
- Rules of operating audiovisual equipment.
- Terminology in foreign languages (primarily English) regarding the functioning of the European Union.

Psychophysical features

- Language skills.
- Assertiveness.
- Creativity.
- Ability to establish and maintain contacts easily.

- High ability of oral and written communication.
- Objectivity.
- Resistance to prolonged mental effort.
- Openness.
- Risk-taking ability.
- Perceptiveness.
- Readiness to solve non-standard problems.

Basic occupational qualifications

Skills

- Searches for information on various aspects of the European Union and other countries functioning in printed materials and the Internet (Q-1, Q-2, Q-3).
- Identifies sources and obtains information from domestic and foreign entities engaged in cooperation with the Member States and non-EU countries (Q-3).
- Establishes and maintains cooperation with representatives of domestic and foreign institutions engaged in cooperation with the Member States and non-EU countries (Q-3, Q-4).
- Informs on the opportunities and rules of cooperation with the EU Member States and non-member countries, including rules for obtaining financial support from the EU resources for specific initiatives/ projects (Q-1, Q-2, Q-3, Q-4).
- Obtains and delivers the necessary documentation (forms, guidelines, etc.) for purposes of cooperation with the EU Member States and non-member countries (Q-1, Q-3, Q-4).
- Selects programs/ initiatives appropriate for the needs of the institution preparing the application (Q-1, Q-3, Q-4).
- Enlists domestic and foreign partners for cooperation, organizes project consortium (Q-1, Q-3, Q-4).
- Completes the application form (including the design of the project's budget) in compliance with the requirements of the programme/initiative (Q-1, Q-3).
- Consults the contents of application forms, to make them consistent with the goals and criteria of the programme/ initiative (Q-1, Q-3).
- Prepares the subject matter and financial documentation in the course of project implementation (Q-1, Q-3).
- Evaluates the implementation degree of assumed goals, timely execution of tasks and financial aspects of cooperation with the EU Member States and non-member countries (Q-3, Q-4, Q-5).

- Identifies the training needs of institutions and their employees regarding various aspects of EU functioning and cooperation with the Member States and non-EU countries (Q-2).
- Designs the subject matter, scope and syllabus for training on the economic, social and legal aspects of the European Union functioning, integration processes and cooperation with the Member States and non-EU countries (Q-1, Q-2).
- Develops scenarios for projects/ undertakings fostering the idea of European Integration (Q-2).
- Selects lecturers and experts for training on the issues of cooperation with the Member States and non-EU countries (Q-2).
- Edits information materials on training regarding various aspects of the EU functioning and cooperation with the Member States and non-EU countries (Q-2).
- Prepares cost estimates for training on various aspects of the EU functioning and cooperation with the Member States and non-EU countries (Q-1, Q-3).
- Designs the subject matter of teaching materials on the economic, social and legal aspects of the European Union functioning, integration processes and cooperation with the Member States and non-EU countries (Q-1, Q-2, Q-3, Q-4, Q-5).
- Involves the authorities (government and self government) and encourages the local community to participate in projects on the subject of the European Union (Q-1, Q-2, Q-3, Q-4).
- Adapts the subject matter and form of undertakings concerning the issues of the European Union to the individual circumstances and groups of recipients (Q-1, Q-2).
- Applies public procurement regulations (Q-1, Q-3, Q-4).
- Does two-way translations of information materials/ documentation (Q-1, Q-3, Q-4).
- Integrates multi-cultural communities (Q-2, Q-3, Q-4, Q-5).

Knowledge

- Legislation of Poland and the European Union including regulations (and procedures) for the selected areas of cooperation (Q-1, Q-3, Q-4, Q-5).
- Procedures for qualification and evaluation of applications for projects and initiatives (Q-1, Q-3, Q-4, Q-5).
- Rules of project/ initiative monitoring (Q-5).
- Management rules of projects/ undertakings co-financed by the European Union (Q-3, Q-4).
- Promotion and marketing rules (Q-1, Q-2).
- Rules for organization of training services (Q-1, Q-2).
- Public procurement regulations (Q-1, Q-3, Q-4).

Psychophysical features

- Ability to work quickly (Q-1, Q-3, Q-4).
- Ability to focus attention on customer's problems (Q-1).

Specialist qualifications

Skills

- Fluency in at least one (aside from English), less popular official language of the European Union (Q-3, Q-4, Q-5).
- Prepares information and promotional materials using specialist computer software (Q-2).
- Performs financial settlement of projects co-financed from the EU funds (Q-3).
- Informs on the subject and dates of training sessions on the cooperation with the EU Member States and non-EU countries (Q-1, Q-2).
- Acquires funds for the implementation of undertakings related to the European Union issues (Q-1, Q-2).

Knowledge

- Foreign language terminology (less popular languages) on the functioning of the European Union and integration processes (Q-3, Q-4, Q-5).
- Rules of using specialist computer software (Q-1, Q-2).
- Marketing of training services (Q-2).
- Accounting standards concerning implementation of international projects (Q-3).

Psychophysical features

- Artistic talents (Q-1, Q-2).

LEVEL 5

General vocational qualifications

Skills

- Analyses economic, social and political transformations; formulates diagnoses of their influence on the situation in the country/ institution.
- Conducts negotiations.

Knowledge

- Rules of functioning under market economy conditions.

Psychophysical features

- Analytical and synthetic thinking ability.
- Readiness to introduce changes, openness to changes, innovation.

Basic occupational qualifications

Skills

- Plans the strategy of the organizational entity cooperating with the EU Member States and non-member countries (Q-3, Q-4).
- Plans and controls the use of human, technical and financial resources (Q-3, Q-4).
- Plans the implementation of cooperation with the EU Member States and non-member countries (Q-3, Q-4).
- Concludes cooperation agreements with institutions from the Member States and from outside the European Union (Q-3, Q-4).
- Conducts international negotiations (Q-3, Q-4).
- Determines the scope of duties, including the competencies of persons responsible for cooperation with the Member States and non-EU countries; and coordination of their work (Q-3, Q-4).
- Formulates the rules for cooperation with partners (institutions and individuals) from the EU Member States and non-EU countries (Q-3, Q-4).
- Evaluates the implementation of cooperation with the EU Member States and non-member countries (Q-3, Q-4, Q-5).

Knowledge

- Managing implementation of international undertakings (Q-3, Q-4).
- Formal requirements for concluding contracts related to cooperation with the Member States and non-EU countries (Q-3, Q-4).
- Rules of conducting international negotiations (Q-3, Q-4).
- Job descriptions of the employees of the organizational structure in charge of the European integration issues and cooperation with the Member States and non-EU countries (Q-3, Q-4).

Psychophysical features

- *Not identified.*

Specialist qualifications

Skills

- Expressing opinions on domestic and EU legislation (Q-4, Q-5).
- Develops drafts of domestic and EU legislation (Q-4, Q-5).

Knowledge

- Procedures for drafting of domestic and EU legislation (Q-4, Q-5).
- Decision-making procedures in the European Union (Q-4, Q-5).

Psychophysical features

- *Not identified.*

2.

Qualification standard for the vocation of NURSE (3231)

Authors:

- **Maria Brzezińska, M.Sc.**
Regional Chamber of Nurses and Midwives in Katowice
- **Maria Kózka, Ph.D. in the humanities**, Institute of Nursing, Health Protection Department at the Collegium Medicum of the Jagiellonian University in Kraków

Methodology consultant

- **Ireneusz Woźniak, M. Sc. Eng., Ph.D.**
Institute for Sustainable Technologies in Radom

Reviewers:

- **Assist. Prof. Helena Lenartowicz, Ph.D. in medical sciences**
Institute of Nursing, Health Protection Department at the Collegium Medicum of the Jagiellonian University in Kraków
- **Professor Irena Wrońska, Ph.D. in the humanities**
Department of Nursing and Health Sciences, Medical Academy in Lublin

External evaluators:

- **Iłona Tułodziecka**, President of the Main Council of Nurses and Midwives in Warsaw
- **Grażyna Kruk-Kupiec, Ph.D. in biological sciences**
National Nursing Consultant
- **Grażyna Osicka, M.Sc.** Director of the National Center for Supporting Vocational and Lifelong Education

1. Legal basis for performance of the vocation¹

- The Nurses and Midwives Self Government Act of 19th April 1991 (Journal of Law of 1991, no. 41 item 179, with later amendments).
- The act dated 5th July 1996 on the vocations of nurse and midwife (Journal of Law of 2001, no. 57 item 602, with later amendments).
- The act dated 31st August 1991 on health care institutions (Journal of Law of 1991, no. 91 item 408, with later amendments).
- The act dated 23rd January 2003, on the universal insurance with the National Health Fund (Journal of Law of 2003, no. 45 item 391, with later amendments).
- The act dated 6th December 2002 on rendering medical rescue services (Journal of Law of 2002, no. 241 item 2073).
- The act dated 27th June 1997 on the industrial medicine service (Journal of Law of 1997, no. 96 item 593, with later amendments).
- The act dated 29th November 1990 on social assistance (Journal of Law of 1998, no. 64 item 414, with later amendments).
- The act dated 22nd August 1997 on public blood service (Journal of Law of 1997, no. 106 item 681, with later amendments).
- The act dated 19th August 1994 on mental health protection (Journal of Law of 1994, no. 111 item 535, with later amendments).
- Regulation of the Minister of Health and Social Welfare dated 19th January 1993 on proceedings related to professional liability of nurses and midwives (Journal of Law of 1993, no. 9 item 45).
- Regulation of the Minister of Health and Social Welfare dated 17th June 1992 on proceedings related to awarding the licence to perform the jobs of nurses and midwives and the rules of maintaining the register of nurses and midwives (Journal of Law of 1992, no. 52 item 248, with later amendments).
- Regulation of the Minister of Health dated 4th April 2000 on the technical and sanitary requirements for premises and rooms where individual practice, individual specialist practice and group practice of nurses and midwives may be performed (Journal of Law of 2000, no. 27 item 344).
- Regulation of the Minister of Health and Social Welfare dated 2nd September 1997, on the scope and types of preventive, diagnostic, therapeutic and rehabilitation services performed independently by the nurse without doctor's order as well as the scope and types of such services performed independently by the midwife (Journal of Law of 1997, no. 116 item 750).
- Regulation of the Minister of Health and Social Welfare dated 11th June 1997 on the specific rules and mode for declaring incapacity to perform the

¹ Status as of 1st June 2003

jobs of nurse and midwife, detailed rules and mode for suspending the right to practise the job, or limiting the performance of specific occupational activities (Journal of Law of 1997, no. 73 item 465).

- Regulation of the Minister of Health dated 26th July 2000 on the post-graduate internship of nurses and midwives (Journal of Law of 2000, no. 69 item 815).
- Regulation of the Minister of Health dated 3rd November 1999 on the specimen of certificate licensing to practise the nursing or midwife vocations, and specimen of certificate on the limited right to practise the nursing or midwife vocation (Journal of Law of 1999, no. 97 item 1137).
- Regulation of the Minister of Health and Social Welfare dated 15th January 2002 on standards of education in the jobs of nurses and midwives (Journal of Law of 2002, no. 55 item 499).
- Regulation of the Minister of Health dated 25th October 2000 on national and provincial consultants (Journal of Law of 2002, no. 188 item 1582).
- Regulation of the Minister of Health dated 19th August 1998 on the detailed rules of organizing competitions for some managerial positions in public health service institutions, composition of the competition deciding committee and framework regulations for conducting the competition (Journal of Law of 1998, no. 115 item 749, with later amendments).
- Regulation of the Minister of Health dated 17th May 2000 on requirements that should be complied with by persons in managerial positions in public health service institutions of specified type (Journal of Law of 2000, no. 44, item 520, with later amendments).
- Regulation of the Minister of Health dated 29th March 1999 regarding qualifications required from employees in various types of positions in public health service institutions (Journal of Law of 1999, no. 30 item 300).
- Regulation of the Minister of Health dated 21st December 1999 on the manner of defining minimum norms for employment of nurses and midwives in health service institutions (Journal of Law of 1999, no. 111, item 1314).
- Regulation of the Minister of Health dated 25th March 2003 on the mode of proposing candidates for members of social councils, and the rules of procedure for social councils (Journal of Law of 2003, no. 55 item 494).
- Regulation of the Minister of Health dated 31st March 2003 on the mode of proposing candidates for members of the Board of National Health Fund and the rules of procedure for the Board (Journal of Law of 2003, no. 56 item 502).
- Regulation of the Minister of Health dated 9th April 2003 on the general conditions of providing health services and the manner of selection by the insured of the general practitioner, nurse and midwife of health care (Journal of Law of 2003, no. 63 item 589).

- Regulation of the Minister of Health and Social Welfare dated 15th September 1997 regarding the tasks of industrial health service whose performance by the nurses requires additional qualifications; the types and mode for acquiring these qualifications and types of documents which confirm them (Journal of Law of 1997, no. 124 item 796).
- Regulation of the Minister of Health and Social Welfare dated 15th September 1997 regarding the types of documentation in industrial health service, the manner for management and storage of such documentation (Journal of Law of 1997, no. 120 item 768).
- Regulation of the Minister of Health dated 10th May 2000 on the hospital rescue ward (Journal of Law of 2002, no. 74 item 687).
- Regulation of the Minister of Health dated 30th August 2001 on reporting the start or finishing of the activities by the doctor or nurse performing tasks in the area of preventive care for the employed, and the manner of delivering such reports (Journal of Law of 2001, no. 97 item 1064).
- Regulation of the Minister of Labour and Social Policy dated 18th December 1996 on the types of specialist care services and the qualifications of persons providing such services to persons with mental disorders, the rules and mode of setting and collecting fees for such services as well as the conditions for full or partial exemption from such fees (Journal of Law of 1997, no. 2 item 12).
- Regulation of the Council of Ministers dated 26th July 2000 on the rules of remuneration and qualification requirements for self government employees working in self-government organizational units (Journal of Law of 2000, no. 61 item 708).
- Regulation of the Minister of Health and Social Welfare dated 19th June 1996 on occupational safety and hygiene during the preparation, administration and storage of cytostatic medication in health care institutions (Journal of Law of 1996, no. 80 item 376).
- Regulation of the Minister of Health dated 10th August 2001, on the types of medical documentation in health care institutions, the manner of its management and detailed rules for making such documentation available (Journal of Law of 2001, no. 88 item 966).

2. Synthetic description of the vocation

The practice of the nursing vocation entails rendering – by a person possessing the required qualifications proven by appropriate documents – of health services, and specifically, care, preventive, diagnostic, rehabilitation and health education services.

The nurse renders the services primarily through:

- identification of the health conditions and needs,

- identification of nursing problems,
- provision of nursing care,
- implementation of medical instructions in the process of diagnosis, treatment and rehabilitation,
- independent provision of preventive, diagnostic, treatment and rehabilitation services within a specified scope,
- health education.

Performing the nursing vocation by the person possessing the required qualifications is also deemed to include:

- providing instruction on the nursing vocation,
- carrying out research and development projects within the scope of nursing,
- managing a team of nurses and midwives.

The important predispositions of a nurse include ability to establish contact, and complaisant manner in cooperation with others. Important features and traits of a nurse include: quick reaction to the changing situation, patience, precision, responsibility, manual dexterity and ability to divide attention. Good mental and physical condition as well as stress resistance are very important for this vocation.

Due to the varied environment of work, nurses perform a wide variety of tasks. The nurse's work is performed primarily in buildings (hospitals, outpatient clinics, schools, homes etc.) and outdoors (at sites of accidents or disasters).

The nurse almost always works in a team of people representing various levels of education, varying scopes of duties and professional liability. While performing her job, the nurse cooperates with both representatives of her vocation and other professionals.

The nurse's work in most institutions is performed in shifts, in a continuous system of 7 or 35 hours. The working hours are regulated internally by the employer. Work takes place on weekdays, Sundays, public and national holidays.

Managerial staff works under a single-shift system. In many jobs, inconveniences resulting from work conditions are present, such as stress, exposure to high temperatures, risk of infection and physical effort.

The profession of a nurse is a liberal and independent profession. It requires constant, continuous learning.

In the nursing vocation, there are groups of positions dealing with:

- 1) direct care for healthy children and adults:
 - healthy child outpatient clinics,
 - care in teaching and educational institutions,
 - general outpatient clinics,
 - industrial medical care,
- 2) direct care for sick persons in primary health care:
 - community care,

- specialist outpatient clinics,
- home care,
- 2) direct care for sick persons in full-time health care institutions:
 - hospital wards in various areas of medicine,
 - health resort hospitals and sanatoria,
 - specialist outpatient clinics,
 - emergency service stations,
- social welfare homes, nursing homes and permanent care institutions,
- 3) management and supervision in the area of:
 - direct care,
 - managing a team of nurses,
 - controlling the care quality,
- 4) education and teaching.

Positions pertaining to management and supervision require appropriate specialization (completion of a relevant training course and holding management qualifications, according to the regulation of the Minister of Health and Social Welfare regarding qualifications required of employees in various types of positions in public health services institutions). Positions dealing with education and teaching require appropriate pedagogical background.

In order to obtain nursing qualifications it is necessary to complete a nursing school and obtain the right to practise the vocation, as defined in the act on the vocations of nurse and midwife. The nurse may acquire additional qualifications upon completing specialist courses, qualification courses and specialties in nursing areas defined in the regulation of Health Minister of 1997, regarding post-graduate training.

3. Positions

Table 1. Assignment of positions to the levels of vocational qualifications

Level of vocational qualifications	Typical positions	Comments
1	*)	
2	*)	
3	– Nurse	Diploma of a nurse, or B.A. in nursing.
4	<ul style="list-style-type: none"> – Community nurse²⁾ – Senior community nurse ¹⁾ – Industrial medicine service nurse²⁾ – Coordinating nurse, supervising the work of other nurses³⁾ – Senior nurse⁸⁾ – Nursing specialist ⁵⁾ – Ward nurse⁶⁾ – Deputy ward nurse⁶⁾ – Epidemiology nurse⁷⁾ 	¹⁾ Qualification course and relevant work experience. ²⁾ Qualification course ³⁾ Specialization in the area of nursing/ qualification course and relevant work experience. ⁵⁾ Specialization in various areas of nursing. ⁶⁾ Specialization/ qualification course in various areas of nursing, and relevant work experience ⁷⁾ Specialization/ qualification course. ⁸⁾ Work experience.
5	<ul style="list-style-type: none"> – Deputy nursing director ⁴⁾ – Head nurse ⁴⁾ – Matron ⁴⁾ – Deputy matron ⁴⁾ 	⁴⁾ Higher studies awarding academic title (Master's degree) in nursing and other areas, applicable to the provision of medical services.

*) *Not identified in the research.*

4. Occupational tasks

- T-1. Health promotion and health education for individuals and social groups.
- T-2. Provision of care to healthy individuals at various stages of life.
- T-3. Provision of emergency care to sick persons in life-threatening condition.
- T-4. Provision of care to sick/ disabled persons.
- T-5. Assistance to, or substituting for, sick/ disabled persons in day-to-day activities.
- T-6. Use of medical equipment.
- T-7. Preparation of patients for diagnostic tests and surgical procedures.
- T-8. Preparation of the sick/ disabled persons and their families for self-care.
- T-9. Administration of: oxygen, medication, blood and blood substitutes to sick persons.
- T-10. Improvement of a sick/ disabled person's efficiency in motor activity.
- T-11. Organization and planning of own work.
- T-12. Organization of appropriate environment for hospital and home care.
- T-13. Organization of care environment at work and education places.
- T-14. Involvement in cooperation with other members of the therapeutic team in the process of prevention, diagnosis, therapy, rehabilitation and care.
- T-15. Organization of nursing care.
- T-16. Implementation of scientific knowledge into practice, identification of research areas in nursing.
- T-17. Provision of appropriate nursing care quality/ compliance with procedures.
- T-18. Participation in the process of vocational education and development.
- T-19. Documentation of health benefits.

5. Components of vocational qualifications

- Q-1. Delivery of health education.
- Q-2. Care for persons.
- Q-3. Organization of nursing care.
- Q-4. Application of procedures ensuring appropriate nursing care quality.
- Q-5. Undertaking cooperation in a therapeutic team.
- Q-6. Providing pre-medical aid.

6. Correlation between occupational tasks and components of vocational qualifications

Table 2. Correlation between occupational tasks and components of vocational qualifications

Occupational tasks	Components of vocational qualifications					
	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6
T-1	X	X	X		X	
T-2	X	X	X		X	
T-3		X	X	X	X	X
T-4	X	X	X	X	X	
T-5	X	X	X			
T-6		X	X		X	
T-7	X	X	X	X	X	
T-8	X	X			X	
T-9		X	X	X	X	X
T-10	X	X			X	
T-11	X	X	X	X	X	
T-12		X	X	X	X	
T-13	X	X	X		X	
T-14	X	X		X	X	X
T-15		X	X	X	X	
T-16	X	X	X	X		
T-17		X		X		X
T-18	X	X	X	X		
T-19	X	X		X	X	X

7. Extra-vocational qualifications

Table 3. Assignment of extra-vocational to vocational qualification levels

Level of vocational qualifications	Extra-vocational qualifications
SKILLS	
1	*)
2	*)
3	<ul style="list-style-type: none"> - Communicates with other people. - Adapts to changes occurring in the surroundings. - Makes independent decisions. - Adheres to the rules of social coexistence. - Performs tasks related to his/her own job. - Uses traditional and electronic databases. - Searches for information and processes it. - Participates in problem solving in his/her own job. - Performs self-assessment. - Defines his/her own needs regarding intellectual and professional development. - Sets his/her own goals of vocational development. - Chooses the forms and methods of vocational development - Promotes and upholds positive image of the vocation. - Copes with stress. - Provides pre-medical aid.
4	<ul style="list-style-type: none"> - Organizes the job and workstation taking into account the rules of ergonomics and current occupational safety and hygiene regulations. - Respects fundamental rights of the employer and employee. - Plans his/her own work and work of subordinate employees. - Provides appropriate conditions for the execution of tasks. - Assesses the course of the work performed. - Solves problems in his/her own job. - Initiates and introduces changes in his/her own area of operations. - Motivates herself/himself and subordinate employees to effective work. - Improves work methods – his/her own and team members’. - Performs assessment of subordinate employees. - Actively participates in selected forms of vocational development.
5	<ul style="list-style-type: none"> - Participates in creating the institution’s mission statement and planning of its tasks. - Participates in defining of the institution’s strategic goals. - Plans changes in positions.

	<ul style="list-style-type: none"> - Cooperates with the institution's management. - Supervises the sanitary condition of the institution. - Diagnoses and solves organizational problems of the institution. - Solves problems related to job positions. - Approves monthly work schedules of subordinate employees. - Ensures appropriate staffing of positions. - Conducts recruitment of employees. - Organizes management meetings. - Evaluates the course of work performed in individual positions. - Conducts periodic inspections. - Develops tools for periodic assessment of employees. - Performs direct assessment of subordinate employees. - Implements incentive programmes for employees. - Makes proposals for promotions, salary increases and bonuses, submits them to the institution's director. - Makes decisions regarding the staffing of directly subordinate managerial positions and dismissal of subordinate employees. - Develops and coordinates the internal programme of employees vocational development.
KNOWLEDGE	
1	*)
2	*)
3	<ul style="list-style-type: none"> - Communication techniques. - Rules of social coexistence. - Techniques of searching for and processing information. - Rules of completing documents and doing calculations. - Position – organization, regulations regarding occupational safety and hygiene. - Stress in daily life – methods of coping with stress. - Vocational development – goals, tasks, areas. - Rules of providing pre-medical aid.
4	<ul style="list-style-type: none"> - The work process. - Teamwork rules. - Physical and mental burden at work. - Elements of a job position. - Work quality assessment. - Managing change. - Solving problems at the position. - Rules of processing information.
5	<ul style="list-style-type: none"> - Rudiments of organization and management - Strategic management. - Work planning methods. - Conflict solving. - Staffing of positions.

PSYCHOPHYSICAL FEATURES	
1	*)
2	*)
3	<ul style="list-style-type: none"> – Responsibility. – Independence in the execution of occupational tasks. – Communicativeness. – Ability to think logically. – Ability to cooperate. – Perceptiveness. – Ability to divide attention. – Reliability. – Accuracy. – Ease in communication, oral and written. – Ability to establish contacts with others. – Emotional resistance.
4	<ul style="list-style-type: none"> – Readiness to introduce changes – Persuasiveness.
5	<ul style="list-style-type: none"> – Independence in making strategic decisions. – Ability to make pertinent decisions. – Persuasiveness.

*) *Not identified in the research.*

8. Specification of qualifications: general vocational, basic occupational and specialist for the vocation

NOTE: Higher level qualifications contain lower level qualifications

LEVEL 1

– *Not identified.*

LEVEL 2

– *Not identified.*

LEVEL 3

General vocational qualifications

Skills

- Communicates with the patient, patient's family and members of the therapeutic team.
- Provides a sense of security to the patient.
- Shows respect to the patient.
- Respects intimacy and dignity of the patient.
- Applies rules of individuality in providing care.
- Respects the customs, values and religious beliefs of individuals/ groups.
- Adheres to the confidentiality standard.
- Respects human rights/ child rights/ patient rights.
- Respects the patient's right to information.
- Is responsible to the patient for the provided care.
- Maintains contact with the patient's family and his relatives.
- Supports individuals in combating the disease or disability.
- Informs the patient/ the disabled and/or the family about the limitations resulting from the disease.
- Calculates the dosage of drugs.
- Participates in discussions regarding changes in nursing practice.
- Cooperates with other professionals.

Knowledge

- Communication rules – barriers and mistakes in communication.
- Physical and mental security of the sick/ disabled person.
- Ethics in medical professions.
- Charters of Human/ Children's / Patients' Rights.
- Professional liability.
- Man as a biological, psychological and social entity.
- Social support – theory and practice.
- System of organization and rules of functioning of health care institutions in Poland.
- Scientific achievements as the foundation for improving nursing practice.

Psychophysical features

- Logical thinking.
- Independence.
- Self-control ability.
- Ease in establishing contacts with others.
- Openness.
- Honesty.

- Responsibility.
- Ability to divide attention.
- Good memory.
- Quick reflex.
- Accuracy.
- Assertiveness.
- Reliability.
- Meticulousness.

Basic occupational qualifications

Skills

- Recognizes the conditions of maintaining the individual's health (Q-2)
- Recognizes risk factors for diseases resulting from lifestyle (Q-2).
- Evaluates the health condition of an individual/ family/ social group (Q-2).
- Evaluates the threats of health problems resulting from the human life cycle (Q-2).
- Evaluates the health, hygienic, social and living conditions of individuals/ social group (Q-2).
- Collects data in order to recognize health problems (Q-2).
- Recognizes health problems of individuals/ groups (Q-2).
- Teaches individuals how to self-evaluate their health condition (Q-1).
- Motivates individuals to engage in health-promoting behaviours (Q-1).
- Initiates and supports the individual/ family in staying healthy (Q-1).
- Implements a programme of health promotion and prevention (Q-1).
- Provides advice on the nutrition of adults and healthy children (Q-1).
- Determines diet for nutrition of healthy individuals (Q-2).
- Influences appropriate health-related behaviours (Q-1).
- Performs physical examination enabling an early diagnosis of breast diseases (mastopathy)(Q-2).
- Teaches women how to self-examine breasts (Q-1).
- Engages in activities promoting mental health (Q-1).
- Performs community interviews (Q-2).
- Identifies health situation of a family/ community (Q-2).
- Applies stimulating methods in the teaching and learning of health-promoting behaviours (Q-1).
- Evaluates health conditions of pupils and students (Q-2).
- Provides care for premature infants, newborns and babies (Q-2).
- Bathes the newborn/ the baby (Q-2).
- Assists the patient in adaptation to conditions in hospitals and other health care institutions (Q-2).

- Recognizes reactions of the patient and his/her family to the disease / disability (Q-2).
- Assesses the influence of illness and hospitalization on the behaviours of the sick/ disabled person and his/her family (Q-2).
- Interviews the patient (Q-2).
- Sets the goals and plan of care for the sick/disabled person (Q-2).
- Formulates the nursing diagnosis (Q-2).
- Selects the nursing model (Q-2).
- Determines, in cooperation with the sick/disabled person and his/her family, the plan and manner of care provision (Q-5).
- Cares for the sick person before and after surgery, and in various clinical conditions (Q-2).
- Monitors the patient's condition during all stages of treatment (Q-2).
- Performs ongoing and final evaluation of nursing activities (Q-2).
- Assesses the patient's knowledge on the diagnostic or surgical procedure (Q-2).
- Explains the patient's doubts related to the planned diagnostic or surgical procedure (Q-2).
- Informs the patient of the need to perform nursing or therapeutic actions before a diagnostic or surgical procedure (Q-2).
- Prepares the patient's digestive tract for diagnostic or surgical procedures (Q-2).
- Prepares the patient's skin for surgical procedures (Q-2).
- Completes the patient's documentation (Q-3).
- Performs identification of the patient for the purpose of transfer to the ward, diagnostic laboratory or operating suite (Q-2).
- Assesses, in cooperation with the sick/disabled person and his/her family, the effectiveness of undertaken actions (Q-5).
- Shapes the social environment of the patient (Q-3).
- Protects the patient from infections (Q-2).
- Isolates potentially infected patients or patients with infectious diseases (Q-2).
- Stores medication in compliance with the standards (Q-4).
- Administers medication to the patient via various routes following written instructions of the doctor (Q-5).
- Diagnoses complications of the pharmacological, dietary, rehabilitative treatments, therapy and nursing care (Q-2).
- Determines the scope of help and assists the patient in eating, excretion, moving about, keeping clean (Q-2).
- Cares for the patient's skin and mucous membranes using pharmacological agents and medical materials (Q-2).
- Selects the methods and dresses burns, wounds, bedsores (including the 3rd degree ones) and fistulas (Q-2).
- Evaluates the patient's reaction to pain and its intensification (Q-2).
- Selects and applies various techniques of feeding patients (Q-2).

- Performs per rectum procedures – enema, infusion, rectal drip infusions (Q-2).
- Inserts catheter into the urinary bladder, monitors diuresis and removes the catheter (Q-2).
- Places the patient in bed and changes the patient's position (Q-2).
- Applies improvements to a patient confined to bed (Q-2).
- Improves the patient's motor activity: sitting, assuming erect position, learning to walk, learning self-service (Q-2).
- Performs respiratory exercises and postural drainage (Q-2).
- Performs rub-downs, massage, tapotement (clapping), active and passive exercises (Q-2).
- Assures patient's activity in line with age and clinical condition (Q-2).
- Creates conditions that encourage the patient/ disabled to engage in efficiency-increasing activities (Q-2).
- Eases the patient's tension and anxiety related to illness or disability (Q-2).
- Facilitates the patient's contact with family and relatives (Q-5).
- Guarantees safe surroundings for the patient (Q-2).
- Creates appropriate conditions for occupational therapy (Q-2).
- Provides psychotherapy (Q-2).
- Creates appropriate conditions for the patient's sleep and rest (Q-2).
- Measures the patient's arterial blood pressure, pulse, breath, weight, height (Q-2, Q-4).
- Measures central venous pressure (Q-2, Q-4).
- Provides care to patients IV and arterial lines (Q-2).
- Hooks up and operates sets for intravenous drip infusion (Q-2, Q-4).
- Manages patient's fluid balance (Q-2).
- Inserts stomach tube and reduces the gastric contents (Q-2, Q-4).
- Applies cupping glasses (Q-2, Q-4).
- Inserts cannulas into peripheral veins (Q-2, Q-4).
- Administers inhalations (Q-2, Q-4).
- Measures blood glucose level using a glucometer (Q-2).
- Performs pulse oximetry (Q-2).
- Performs diagnostic tests to determine the ketone bodies and glucose in blood and urine (Q-2).
- Evaluates the patient's deficit in terms of self-care (Q-2).
- Evaluates the level and scope of family's ability to care for the sick/ disabled person (Q-2).
- Provides advice on self-care in sickness and disability for the sick person and the family (Q-1).
- Facilitates joining the social support groups by the sick persons and their families (Q-5).
- Diagnoses a life-threatening condition (Q-6).
- Triage patients (Q-6).

- Assesses the degree and area of burns, performs therapeutic actions under pre-medical aid (Q-6).
- Restores and maintains patency of the patient's respiratory tract (Q-6).
- Administers oxygen in emergency situations (Q-6).
- Puts the patient in a safe position (Q-6).
- Immobilizes broken bones and dislocated joints, prepares the patient for transport (Q-6).
- Orders transport of the patient (Q-6).
- Dresses wounds (Q-6).
- Makes a preliminary assessment of trauma severity (Q-6).
- Provides information on the patient's condition to members of a therapeutic team (Q-5).
- Creates appropriate conditions for dignified dying (Q-3).
- Prepares equipment and instruments (Q-3).
- Assists the doctor during diagnostic tests and therapeutic procedures (Q-5).
- Transports the patient from the admission room to the ward, diagnostic laboratory or operating suite (Q-3).
- Disinfects instruments and medical equipment (Q-4).
- Prepares sterilization sets (Q-4).
- Draws samples for laboratory and bacteriological tests (Q-5).
- Prepares the patient and patient's family to discharge from hospital (Q-5).
- Evaluates the patient's quality of life (Q-3).
- Maintains nursing care records where the care process of the sick/disabled is documented (Q-3).
- Records the performed doctor's order in the patient's chart (Q-3).
- Maintains documentation referring to care for the patient: charts of observations, nursing procedures, reports, hospital infections, prevention and treatment of bedsores, information chart containing recommendations for self-care (Q-3).

Knowledge

- Health education – goals and tasks (Q-1).
- Rules of pedagogy and andragogy (Q-1).
- Community hygiene (K-1)
- Psychological and social concepts of health (Q-1).
- Subject- and object-oriented research of wards/pupils (Q-1).
- General rules for learning and teaching (Q-1).
- Selected cultural issues – components of culture: race, ethnic issues, selected religious issues. Influence of culture on health-related behaviours (Q-2).
- The health-related needs of individuals and society – sources of information on the health condition of an individual/ family/ society (Q-1).
- Determinants of health-related behaviours and risk factors of civilization-related diseases (Q-1).

- Goals and areas of health promotion – the nurse’s role (Q-1).
- Conditions determining lifestyle (Q-1).
- Prevention of social diseases (Q-1).
- Methods of shaping health-related behaviours (Q-1).
- Selected issues from sociology of medicine (Q-3).
- Work in a therapeutic team – purposes, tasks and scope of responsibility (Q-4).
- Forms of hospital and home care (Q-2).
- Needs of the sick/ disabled person (Q-1).
- Illness as a difficult situation (Q-1).
- Reactions of the patient to the disease/ disability/ hospitalization (Q-1).
- Admission of the patient to a health care institution – role of the nurse (Q-1).
- Physical and mental security of the sick/ disabled person (Q-1).
- The nursing process – phases (Q-1).
- Nursing theories and models – C. Roy, Henderson, Nightingale, Orem (Q-2).
- Self-help groups as a form of social support (Q-3).
- Assessment of the condition of the sick/disabled person (Q-1).
- Human anatomy – organs and systems (cardiovascular, respiratory, nervous, skeletal, urinary and reproductive, muscular) (Q-2).
- Basics of human functioning – roles of organs and systems (Q-2).
- General pathophysiology (Q-1).
- Basics of microbiology and parasitology (Q-1).
- Basics of pharmacology – groups of medication, their influence on the organs and systems (Q-2).
- The rules of storing, preparing and administering medication (Q-3).
- Clinical reasons for diseases (Q-1).
- Nursing procedures and techniques in care for the sick/ disabled person (Q-1).
- Diagnosing, treating and caring for patients in various clinical conditions (Q-1).
- Diagnostic procedures – radiological, endoscope, biopsy, biochemical and bacteriological tests (Q-4).
- Preparing the child and adult to diagnostic procedures in various clinical conditions (Q-4).
- Preparing the patient for planned and emergency surgical procedures (Q-1, Q-5).
- Basics of care for premature infants, newborns and babies (Q-1).
- Immobilized patient – complications of the immobility (Q-1).
- Basics of psychotherapy (Q-1).
- Complex rehabilitation – purposes and tasks (Q-4).
- Kinetotherapy – treating with movement. Exercises: passive, active, active assisted (Q-4).
- Inhalations – types and technique of delivering (Q-1).
- Chest drainage – therapeutic indications, types, caring for patient with drainage (Q-1).

- Basics of rehabilitation of the sick/disabled person (Q-4).
- Types of vascular lines – technique for inserting, complications, care for patients with vascular lines (Q-1).
- Wounds – stages of healing, treatment, procedure (Q-2).
- Basics of disinfection and sterilization (Q-3).
- Methods of decontamination (Q-3).
- Life-threatening conditions – diagnosis and procedure (Q-5).
- Disaster medicine – triaging victims, rules of procedure at the accident site and during transport (Q-5).
- Basic resuscitation procedures, with and without equipment - restoring patency of the respiratory tract, indirect heart massage, defibrillation (Q-1, Q-5).
- Fractures and dislocations– diagnosis and procedure (Q-5).
- Organization and safety of patient’s transport (Q-5).
- Medication and fluids administered in emergency situations and during re-suscitation (Q-5).
- Burns – evaluation and procedure (Q-1).
- Haemorrhages – classification, symptoms, procedure (Q-1).
- Poisonings (Q-1).
- Hospital infections – rules of patients' isolation (Q-1).
- Death and dying – care for the patient and family (Q-1).
- Preparing the patient to self-service in various clinical conditions (Q-1).
- Preparing the patient to discharge from the health care institution (Q-4).
- Quality of life – theory and measurement (Q-1).
- Regulations regarding documentation of health benefits (Q-1).
- The importance of documenting care for the patient and employees of the health service sector (Q-1).
- Specimens of nursing documentation (Q-1).

Psychophysical features

- *Not identified.*

Specialist qualifications

- *Not identified.*

LEVEL 4

General vocational qualifications

Skills

- Solves problems in his/her own job and in the managed team.
- Supplies the managed unit with equipment and instruments.
- Controls efficiency of equipment and instruments.
- Sets current and monthly work schedules in the managed unit.
- Manages the team in terms of providing nursing care.
- Plans his/her own work and work of the team.
- Provides appropriate conditions for the execution of tasks.
- Assures appropriate staffing of positions.
- Allocates tasks according to capacities.
- Controls the work of the nursing team.
- Assesses the course of performed work.
- Improves work methods – own and team members’.
- Provides appropriate conditions for rendering services.
- Evaluates the nursing care quality.
- Makes organizational changes to improve care quality.
- Provides orientation and on-the-job training for new employees.
- Initiates program of vocational development.
- Acts as liaison and coordinator between the management and employees.
- Evaluates employees.
- Supervises the security of work and care for patients.
- Introduces changes in nursing care, depending on needs.
- Initiates areas of scientific research useful in the nursing practice.
- Provides scientific justification for the nursing care provided.
- Introduces evaluation to the learning process and understanding of nursing practice.
- Plans implementation of individual research process phases.
- Applies ethical and professional standards to the research.
- Participates in the vocational training of nursing students.
- Participates in various forms of vocational development.

Knowledge

- Position: components, place in the structure, staffing and service.
- Methods of solving problems in the position.
- Distribution of duties in a collective position.
- Work assessment.

- Time of work - physical and mental burden, breaks.
- Occupational safety and hygiene conditions.
- Occupational diseases and work-related accidents.
- Quality management.
- Measurement of care quality.
- Rules for functioning of health care institutions.
- Basic rules for organization of therapeutic environment.
- Research problems in the context of nursing theory.
- Development of scientific research in nursing.
- Basics of scientific research methodology.
- Code of ethics in science.
- Scientific achievements as the foundation for improving nursing practice.
- Barriers to implementing scientific research into nursing practice.
- Priorities of scientific research in nursing.

Psychophysical features

- Ability to cooperate and collaborate.
- Resolve.
- Ability to take initiative.
- Method.
- Ability to work quickly.
- Persistence.
- Creative thinking.
- Efficiency and effectiveness.
- Even-tempered.

Basic occupational qualifications

Skills

- Performs physical examination (Q-2).
- Develops and implements preventive programmes (Q-1).
- Performs screening tests, refers to doctors (Q-2, Q-5).
- Performs periodic checkups (Q-2).
- Develops and implements programmes for preventing addictions in learning and educational institutions (Q-2).
- Conducts screening tests of students (Q-2).
- Provides advice on caring for children from active risk groups (Q-2).
- Assesses the psychosocial development of a child (Q-2).
- Assesses the physical development of a child using centile grids (Q-2).
- Diagnoses disorders in the ontogenetic development of a student (Q-2).
- Provides advice on the nutrition of healthy children (Q-1).

- Assesses the condition and manner of nutrition (Q-2).
- Refers for diagnostic tests and/or draws samples for diagnostic tests (Q-2).
- Refers for diagnostic tests and/or draws samples for bacteriological tests (urine, faeces, sputum, nasal, throat and genital swabs, other secretions) (Q-2).
- Organizes and modifies patient's care (Q-3).
- Provides organizational conditions and creates material environment for delivery of nursing care (Q-3).
- Monitors problems related to the workstation/position (Q-3)
- Designs active forms, methods and manners for work with various categories of sick/disabled persons (Q-3).
- Coordinates hospital/ home care (Q-3).
- Requests for the patient to be covered by social assistance (Q-5).
- Diagnoses issues for improving care quality (Q-4).
- Stimulates to cooperation and activity meant to improve quality (Q-4).
- Determines options for quality improvement (Q-4).
- Performs measurement and evaluation of nursing care quality (Q-4).
- Develops and implements care standards and criteria (Q-4).
- Identifies factors conducive to and obstructing achievement of high care quality (Q-4).
- Measures the concentration of breathing gases (gasometry, capnometry) (Q-2).
- Assesses the patient's awareness using appropriate assessment method (schemes, qualifications) (Q-2).
- Administers oxygen through catheter, facial mask, nasal line (Q-2).
- Applies rules for safe administration of oxygen (Q-4).
- Operates medical equipment during the treatment process (Q-5).
- Operates medical equipment during diagnostic tests and surgical procedures (Q-5).
- Maintains and stores documentation of nursing care in compliance with current regulations (Q-3).

Knowledge

- Health programmes and policy of the state (Q-1).
- Basics of subject-oriented research (Q-1).
- Physical examination – examination of infants, children and adults (Q-1).
- Diagnostic procedures – radiological, endoscope, biopsy, biochemical and bacteriological tests (Q-4).
- Drawing and sending samples for biochemical and bacteriological tests (Q-1).
- Scope and technique of screening tests (Q-1, Q-4).
- Forms of non-hospital care - rules for referring patients (Q-4).
- Care for children from active risk groups (Q-1).
- Organization of care for the sick/disabled person (Q-2).
- Nutrition hygiene (K-1)
- Nutrition of sick children and adults in various clinical conditions (Q-1).

- Cycles of providing health care quality (Q-3).
- Supervision of the nursing care quality (Q-2).
- Methodology of developing care standards and criteria (Q-3).
- Acid-base equilibrium – assessment, interpretation of gasometry results (Q-1).
- Saturation – assessment (Q-1).
- Consciousness disorders – classification and evaluation (Q-1).
- Diagnostic and treatment equipment and apparatuses (Q-1).
- Oxygen treatment – types, rules of safe oxygen therapy, complications (Q-5).

Psychophysical features

- *Not identified.*

Specialist qualifications

Skills

- Performs vaccinations according to the vaccination schedule or under commission from relevant health care institutions, issues appropriate vaccination certificates (Q-2).
- Evaluates the overhydration of a dialysed patient (Q-2).
- Evaluates breathing efficiency using spirometry (Q-2).
- Evaluates and monitors pain and other symptoms in patients with chronic illnesses, covered by palliative care (Q-2).
- Removes sutures (Q-2).
- Modifies constant therapeutic dosage of insulin in emergency situations (Q-2).
- Administers intravenous medication and intravenous transfusion of fluids during cardio-pulmonary resuscitation in compliance with the standards (Q-2, Q-4).
- Administers intravenous transfusion of fluids and administers intravenous medication (Heparinum, Natrium Chloratum 0.9%, Glucosum 5%, Natrium Chloratum 10%, Calcium 10%) and modifies their dosage during dialysis, in compliance with planned therapy determined for the given patient and the standards in force (Q-2, Q-4).
- Modifies the current therapeutic dosage of analgesic medication and medication used to alleviate other acute symptoms – such as shortness of breath, nausea, vomiting, anxiety, delirium - in patients covered by palliative care (Q-2).
- Administers medication in continuous infusion and administers subcutaneous fluids, using the “butterfly” set and infusors to patients in palliative care (Q-2).
- Performs biological tests in patients undergoing blood therapy (Q-3).
- Hooks up IV drip lines with blood and blood substitutes (Q-2).

- Prepares the patients (and their families) treated with the following methods: Continuous Ambulatory Peritoneal Dialysis (CAPD), Automatic Peritoneal Dialysis (APD), haemodialysis and hyperalimentation to cooperate in the treatment (Q-5).
- Performs defibrillation (Q-6).
- Performs ECG (Q-2).
- Rehabilitates the patient using elements of occupational therapy (Q-2).
- Provides creative therapy and rehabilitation of patients requiring palliative care (Q-2).
- Offers instructions on urinary bladder training for patients with incontinence problems (Q-1).
- Offers instructions on the annealing and forming the stump of amputated limb (Q-1).
- Rehabilitates patients with mental disorders (Q-2).
- Provides psychoeducation for patients with mental disorders and dependencies, and for their families (Q-2).
- Evaluates the patient's anaesthesia degree and relaxometry (Q-2).
- Performs constant evaluation of physiological parameters, eye reflexes, pupil size and depth of the patient's anaesthesia (Q-2).
- Maintains anaesthesia chart (Q-3).
- Inserts the mouth-throat tube (Q-6).
- Intubates the patient (Q-6).
- Monitors and operates the respirator for artificial ventilation (Q-3).
- Takes arterial blood pressure using bloody method (Q-2).

Knowledge

- Vaccinations – documentation rules (Q-1, Q-2).
- Renal failure – kidney replacement therapy. Monitoring a patient treated with haemodialysis and peritoneal dialysis. Rules for treatment with fluids. Preparing the patient for CAPD and APD. Forms of assistance for the dialysed patient and patient's family (Q-2).
- Neoplastic pain – pathological mechanism, treatment rules (Q-2).
- Palliative care – drug treatment. Importance of palliative care for the life quality of patients with neoplastic pain – the nurse's role (Q-2).
- Creative therapy and rehabilitation in palliative care (Q-5).
- Diabetes – types, diagnosis, complications, treating diabetes (Q-2).
- Rehabilitation of patients – forms and methods (Q-2).
- Comprehensive rehabilitation of patients, e.g. after limb amputation, suffering from neurogenic bladder, with mental disorders and dependencies (Q-5).
- Anaesthesia – types, preparing the patient for anaesthesia (Q-5).
- Monitoring the patient during anaesthesia (Q-2).
- Life-threatening conditions – resuscitation procedures (Q-5, Q-4).

- Defibrillation (Q-5).
- ECG – performing technique (Q-5).
- Fluids and medication used in resuscitation (Q-4).
- Artificial ventilation - indications, rules, problems related to functioning of respirators (Q-1).
- Arterial blood pressure – physiological facts, direct method of measurement (Q-2).
- Most frequent errors in blood pressure taking (Q-1).

Psychophysical features

- *Not identified.*

LEVEL 5

General vocational qualifications

Skills

- Creates the nurse's image in health care institutions.
- Participates in public procurement.
- Participates in the development and implementation of health programmes.
- Initiates and coordinates care quality programmes.
- Performs measurement and evaluation of nursing care quality.
- Supervises the security of work and care for patients.
- Evaluates auxiliary departments of health care institutions.
- Considers complaints and requests regarding subordinate employees.
- Participates in councils and meetings of the therapeutic team.
- Develops a strategy for building bridges between research and nursing practice, using the EBM rules.
- Supervises the internships of nursing students in the health care institution.

Knowledge

- Rules of functioning of health care institutions.
- Quality management.
- Legislation of the health care system.

Psychophysical features

- At ease in expressing opinions.
- Method.
- Involvement.

- Integrity, abiding the law.
- Readiness to review his/her own opinions.
- Independence.
- Decision-making ability.
- Negotiating skills.
- Ability to co-operate.
- Ability to perceive the bigger picture.
- Creativity in problem solving.

Basic occupational qualifications

Skills

- Cooperates with organizations, associations, nurses' self government (Q-5).
- Prepares organizational diagnosis of nursing care situation (Q-3).
- Defines the organizational structure of nursing division in a health care institution (Q-3).
- Estimates the current demand for nursing services (Q-3).
- Analyses the work burden of nurses' teams working in various wards (Q-3).
- Analyses the staffing and placement of employees on the basis of current regulations issued by the Health Ministry (Q-3).
- Draws up scope of responsibilities, duties and rights of nurses in line with current regulations regarding the health protection system (Q-3).
- Participates in doctors' rounds of wards (Q-5).
- Organizes competitions for the positions of ward nurse, matron (Q-3).
- Cooperates with hospital departments to provide appropriate nursing care quality (Q-4).
- Participates in the programme of nurses' internships in the health care institution (Q-3).
- Analyses, plans and requests purchases of equipment and resources to assure care and supporting the nurse's work (Q-3).
- Gives opinions on the requests for purchase of nursing equipment and resources (Q-3).
- Initiates and coordinates the work of task forces at the hospital level (Q-4).
- Approves implementation of care standards and nursing procedures (Q-4).
- Analyses reports prepared by wards on improving care quality (Q-4).
- Develops and coordinates nurses' adaptation programmes at the institution level (Q-3).
- Supervises the observance of patient's rights in the health care institution (Q-2).
- Determines options for improving care quality (Q-3).
- Develops documentation of nursing care on the basis of current regulations (Q-2).

Knowledge

- Professional organizations in Poland and abroad – goals and tasks (Q-5).
- Professional self government - tasks (Q-5).
- Staffing – minimum personnel requirements for jobs (Q-3).
- Professional liability of nurses (Q-3).
- Professional competencies of a nurse relative to execution of professional functions (Q-3).
- Legislation regulating the nursing profession (Q-3).
- Contemporary trends in development of the profession (Q-3).
- Supervision over documentation quality (Q-3).

Psychophysical features

- *Not identified.*

Specialist qualifications

- *Not identified.*

3.

Qualification standard for the vocation of MECHATRONICS TECHNICIAN (311990)

Authors:

- **Artur Grochowski, M.Sc., Eng.** Institute of Precision and Biomedical Engineering, Faculty of Mechatronics, Warsaw University of Technology
- **Anna Kordowicz-Sot, Ph.D., Eng.**
The „Biofarm” enterprise in Radom
- **Andrzej Sierota, Ph.D., Eng.**
FESTO DIDACTIC Sp. z o.o. in Janki near Warsaw

Methodology consultant:

- **Janusz Figurski, Ph.D., Eng.**
Institute for Sustainable Technologies in Radom

Reviewers:

- **Professor Marek Gawrysiak, Ph.D., Eng.**
Chair of Mechatronics at the Białystok University of Technology
- **Tomasz Giesko, M.Sc. Eng.**
Institute for Sustainable Technologies in Radom

External evaluators:

- **Jan Bis, Ph.D., Eng.**
Secretary General of the Polish Association for Popularization of Computer Engineering Systems „ProCAx”; research worker of the Faculty of Mechatronics at the Military University of Technology (WAT) in Warsaw
- **Tomasz Grzegorzczak, M.Sc., Eng.**
research worker of the Faculty of Mechatronics at the Military University of Technology (WAT) in Warsaw
- **Mirosław Micielica, Ph.D., Eng.**
Research worker of the Institute of Precision and Biomedical Engineering, Faculty of Mechatronics, Warsaw University of Technology

1. Legal basis for performance of the vocation¹

- The act dated 10th April 1997, Energy Law (Journal of Law of 1997, no. 54 item 348, with later amendments).
- Regulation of the Council of Minister dated 3rd July 2001 on the fundamental requirements for electric equipment, conditions and manner for assessing conformity and the manner of labelling electrical equipment (Journal of Law no. 120 item 1276).
- Regulation of the Council of Minister dated 23rd December 2002, amending the regulation on the conditions and manner for assessing conformity of equipment with the requirements on electromagnetic compatibility and the manner of equipment labelling (Journal of Law no. 238 item 2023).
- Regulation of the Minister of Economy and Labour dated 1st December 1998, on issues of occupational safety and hygiene in workstations equipped with computer display (Journal of Law no. 148 of 1998, item 973).
- Regulation of the Minister of Economic Affairs dated 30th October 2002, on minimum requirements regarding occupational safety and hygiene related to operation of machinery by employees (Journal of Law no. 191 item 1596).
- Regulation of the Council of Minister dated 3rd July 2001 on the fundamental requirements for machinery and safety elements which are subject to conformity assessment, on conditions and manner for assessing conformity and the manner of labelling of such machinery and safety elements (Journal of Law no. 127 item 1391).

2. Synthetic description of the vocation

The mechatronics technician is a specialist possessing interdisciplinary vocational qualifications, combining the skills of a mechanic, IT specialist and electronic engineer. An employee performing this job operates mechatronic equipment – modern systems of automatics and cybernetics, able to communicate with humans by receiving and executing complex instructions and commands. Such equipment is characterized by multi-functionality and software intelligence, therefore their design, setup and operation requires a systemic approach. The operation of mechatronic equipment and systems requires the skill to make quick and apt decisions, responsibility and ability to divide attention. The mechatronics technician should have strong technical and mathematical skills.

¹ Legal status as of 1 June 2003.

The mechatronics technician can perform and supervise occupational tasks related to:

- development of technical documentation of mechatronic systems and equipment,
- design and structure of control systems for equipment and systems,
- design of the technological process of machining and detail machining on a numerically controlled machine,
- development of technical documentation of mechatronic systems and equipment,
- development of control systems, set up and activation of mechatronic systems and equipment,
- operation and repair of mechatronic systems and equipment,
- supervision of the work of persons operating mechatronic equipment.

Mechatronics technicians can perform work in the following positions: technical inspection specialists, production and repairs technologists, technologists and designers specializing in development of technical documentation, operators of numerically controlled machine tools, operators of mechatronic systems and equipment, technicians in repair shops servicing mechatronic equipment.

The vocation of mechatronics technician offers ample opportunities for employment and creation of new jobs. An increase of demand for specialists in this vocation is observed and this vocation is considered to be a prospective one. Mechatronics technicians perform many specialized tasks in industry and the power sector, in agriculture and forestry, medicine and prosthetics, seafaring and shipping, aviation, navigation and in many other, numerous areas where IT technologies based on mechanical, electrical and electronic sub-assemblies are used. Mechatronics technicians can run their own production and service businesses.

3. Positions

Table 1. Assignment of positions to the levels of vocational qualifications

Level of vocational qualifications	Typical positions	Comments
1	*)	
2	*)	
3	<ul style="list-style-type: none"> – Assembly foreman – Operation and maintenance foreman – Production foreman – Renovation supervisor – Maintenance controller – Quality controller – Technician in an equipment service shop – Foreman in service and repairs department – Operator of numerically controlled machine tools – Maintenance technician of control systems – Maintenance technician of systems and equipment – Maintenance technician of numerically controlled machine tools 	
4	<ul style="list-style-type: none"> – Maintenance controller – Designer of equipment and systems – Technologist in charge of documentation development – Technologist in charge of production preparation – Technologist in charge of preparing machining on numerically controlled machine tools 	
5	*)	

*) *Not identified in the research.*

4. Occupational tasks

- T-1. Acquisition, evaluation and development of technical information necessary to construct and use mechatronic equipment and systems.
- T-2. Selection of materials and resources for mechatronic systems, equipment and devices.
- T-3. Design of basic mechatronic systems, equipment and devices.
- T-4. Detail machining on a numerically controlled machine tools.
- T-5. Assembly and dismantling of mechanical elements of mechatronic devices and systems.
- T-6. Selection of instrumentation for electrical, pneumatic and hydraulic systems in mechatronic equipment and systems.
- T-7. Installation and testing of IT hardware and software.
- T-8. Measurement and testing of electrical and non-electrical values in mechatronic equipment and systems.
- T-9. Assembly and dismantling of electrical, pneumatic and hydraulic systems in mechatronic equipment and systems.
- T-10. Analysis of functions and setting parameters in mechatronic systems.
- T-11. Programming of mechatronic systems, equipment and devices.
- T-12. Start-up, operation and supervision of the operation of mechatronic equipment and systems.
- T-13. Preventive diagnostic, search for errors, removal of breakdowns in mechatronic equipment and systems.
- T-14. Repair of basic elements, systems and modules in mechatronic equipment and systems.
- T-15. Organization and supervision of assembly and dismantling works of mechatronic systems, equipment and devices.
- T-16. Planning the purchase of elements and sub-assemblies for repair and assembly works related to mechatronic equipment and systems.

5. Components of vocational qualifications

- Q-1. Development and use of technical documentation for mechatronic equipment and systems.
- Q-2. Design of basic technological processes.
- Q-3. Preparation of the machining process and detail machining on numerically controlled machine tools.
- Q-4. Assembly and dismantling of mechatronic equipment and systems.
- Q-5. Activation of mechatronic systems, equipment and devices.
- Q-6. Operation and repair of mechatronic equipment and systems.
- Q-7. Supervision of the work of persons operating mechatronic equipment and systems.

6. Correlation between occupational tasks and components of vocational qualifications

Table 2. Correlation between occupational tasks and components of vocational qualifications

Occupational tasks	Components of vocational qualifications						
	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7
T-1	X	X	X	X	X	X	X
T-2	X	X	X	X	X	X	X
T-3	X	X	X				
T-4	X	X	X				
T-5	X			X	X	X	X
T-6	X	X		X	X	X	X
T-7	X	X		X	X	X	X
T-8	X	X		X	X	X	X
T-9	X			X		X	X
T-10	X	X	X		X		X
T-11	X	X	X		X	X	X
T-12	X	X	X	X	X	X	X
T-13	X				X	X	X
T-14	X			X	X	X	
T-15	X					X	
T-16	X					X	

7. Extra-vocational qualifications

Table 3. Assignment of extra-vocational qualifications to vocational qualification levels

Level of vocational qualifications	Extra-vocational qualifications
SKILLS	
1	*)
2	<ul style="list-style-type: none"> – Applies the provisions of labour law, acts in compliance with employee’s duties and obligations. – Applies the rules of occupational safety and hygiene, fire prevention and protection and regulations on environment protection in the workplace. – Organizes the workstation taking into account the regulations on occupational safety and hygiene regulations, fire prevention and protection and labour environment protection.
3	<ul style="list-style-type: none"> – Uses basic economic terms, necessary in the workplace. – Organizes work in compliance with the rules of ergonomics. – Plans the time of work needed to perform the entrusted task. – Maintains planning documentation in compliance with the work performed. – Maintains reporting records in compliance with the work performed. – Uses the computer and software. – Maintains documentation with the help of computer software. – Engages in discussions with supervisors and co-workers regarding the work performed. – Supervises and manages the work of subordinate employees. – Contacts the customer directly and using modern communication techniques. – Conducts and documents inspection of equipment and systems, following current methodology and criteria.
4	<ul style="list-style-type: none"> – Plans teamwork in order to execute the entrusted task. – Develops quality procedures for the supervised products, processes and services. – Coordinates the quality management system at the workstation. – Uses a foreign language during contacts with foreigners. – Uses documentation in a foreign language. – Solves conflicts in the workplace. – Cooperates with partners from the procurement and sales sectors. – Conducts quality control of products, processes and services.
5	*)

KNOWLEDGE	
1	*)
2	<ul style="list-style-type: none"> – Rights and obligations of employees. – Rules of occupational safety and hygiene, fire prevention and protection and protection of the work environment.
3	<ul style="list-style-type: none"> – Work mechanisms. – Organization and management in enterprise. – Organization of work in compliance with the rules of ergonomics. – Rules for documenting time of work. – Documentation of records. – Reporting documentation. – Planning documentation. – Rules of using a computer. – Basics of the operation of universal office software. – Computer software which support the maintenance of documentation. – Basics of marketing. – Using modern means of interpersonal communication. – Quality standards. – Rules of self-control. – Self-control methodology. – Self-control documentation.
4	<ul style="list-style-type: none"> – Modern forms of organization and management. – Organization of workstations according to the regulations concerning occupational safety and hygiene, fire prevention and protection, environment protection and protection of the work environment. – Rules for organization of work in specialist positions. – Human resource management. – Issues concerning quality assurance. – Quality management. – Implementation and functioning of quality assurance systems in an enterprise. – Basic knowledge on psychology and sociology. – Basic professional vocabulary in foreign languages enabling cooperation with foreigners – Basic professional vocabulary in foreign languages in the area of marketing. – Professional vocabulary in foreign languages in the area of quality control.
5	*)
PSYCHOPHYSICAL FEATURES	
1	*)
2	<ul style="list-style-type: none"> – Accuracy. – Perceptiveness.
3	<ul style="list-style-type: none"> – Ability to think logically. – Ability to concentrate attention. – Aspirations for personal development. – Persistence.

	<ul style="list-style-type: none"> – Passion for accurate work. – Quick reflex. – Ability to cooperate.
4	<ul style="list-style-type: none"> – Composure. – Managerial predispositions. – Ability to treat others properly. – Good communication skills. – Ability to work under stress.
5	*)

*) *Not identified in the research.*

8. Specification of qualifications: general vocational, occupational and specialist for the vocation

NOTE: Higher level qualifications contain lower level qualifications

LEVEL 1

– *Not identified.*

LEVEL 2

GENERAL VOCATIONAL QUALIFICATIONS

Skills

- Uses technical standards.
- Applies appropriate lubricants for the joints of mechanical equipment and systems.
- Identifies and selects basic mechanical elements, sub-assemblies and devices of the mechatronic devices and systems.
- Identifies and selects basic mechanical joints of mechatronic devices.
- Performs measurements of various electrical and non-electrical values in mechatronic equipment and systems, interprets results of measurements.

Knowledge

- Engineering drawings.
- Lubricants.
- Basic information on mechanics in the field of statics and dynamics.
- Basic knowledge on parts of machinery (axes, shafts, bearings).
- Rules of making measurements.

- Rules of occupational safety and hygiene at the workstation.

Psychophysical features

- Technical talents.
- Spatial imagination.
- Dexterity.
- Emotional balance, even temper.

Basic occupational qualifications

Skills

- Assembles and dismantles mechatronic equipment and systems in compliance with the documentation (Q-1, Q-4).
- Makes electrical, pneumatic and hydraulic joints of mechatronic equipment and systems (Q-1, Q-4).
- Uses equipment necessary for assembly and dismantling (Q-1, Q-4).

Knowledge

- Tools and equipment used for assembly and dismantling of electrical, pneumatic and hydraulic parts.

Psychophysical features

- *Not identified.*

Specialist qualifications

- *Not identified.*

LEVEL 3

General vocational qualifications

Skills

- Searches for technical information in specialist magazines, user's manuals, catalogues, the Internet.
- Reads and develops technical documentation (engineering drawings of details, assemblies, assembly drawings).

- Uses technical information in a foreign language.
- Determines the properties and analyzes resistance of materials.
- Selects methods for producing parts of machines (increment and decrement methods, hybrid methods).
- Selects various equipment and machinery used for technological processes.
- Selects technology for producing individual parts of machines.
- Selects appropriate tools for the technological process.
- Applies the system of tolerances and fits during the assembly process.
- Selects measurement methods appropriate for the given physical value and measurement conditions.
- Assesses accuracy of measurements.
- Applies computer technology to perform measurements and interpret results.
- Develops technical documentation, using design assisting software (CAD).
- Recognizes modules in mechatronic equipment and systems.
- Uses software technical documentation in a foreign-language.
- Uses technical documentation and user's manuals.

Knowledge

- Foreign languages at the level enabling the operation of computer software, reading instructions and use of catalogues.
- Technical vocabulary in a foreign language concerning programming of mechatronic systems.
- Selected issues of materials sciences, regarding metals, metal alloys and plastics.
- Resistance computation.
- Technological processes (manual processing, mechanical working, plastic forming, heat treatment, thermo chemical treatment, finishing, protective finishing, increment methods).
- The structure, operation and original purpose of typical technology machines.
- Friction and its role in the operation of equipment.
- Tolerances, fits, shape errors, coarseness.
- Measuring methods.
- Metrological properties of tools and measuring equipment.
- Measurement errors.
- Rules of occupational safety and hygiene applied to transport of mechatronic elements and devices.
- Symbols and rules for drawing electrical circuits, pneumatic and hydraulic systems.
- Technical documentation developed with the help of computer software.
- Modular nature of mechatronics equipment.
- Parameters of mechatronic systems and equipment.

Psychophysical features

- Good eyesight.
- Distinguishing of colours.
- Patience.
- Passion for accuracy.
- Ability to divide attention.
- Ability to make quick and apt decisions.
- Self-control ability.

Basic occupational qualifications

Skills

- Reads and develops simple schemes for electrical, pneumatic and hydraulic systems (Q-1).
- Examines properties of conductors, semiconductors and non-conductors (Q-1, Q-2).
- Examines properties of metals, alloys and plastics (Q-1, Q-2).
- Determines properties of and examines working fluids used in pneumatic and hydraulic systems (Q-1, Q-3).
- Determines the criteria for selection of materials and working resources (Q-3).
- Designs the technology of producing simple details on numerically controlled machine tools(Q-3).
- Selects appropriate tools for machining (Q-3).
- Operates numerically controlled machine tools (Q-3).
- Sets the working parameters of numerically controlled machine tools (Q-2, Q-3, Q-5).
- Makes details on numerically controlled machine tools(Q-3).
- Analyzes the structure and operation of basic mechatronic mechanisms, devices and systems (Q-1).
- Plans the assembly and dismantling of mechanical assemblies, mechatronic devices and systems (Q-1, Q-4, Q-6, Q-7).
- Purchases parts using a purchase plan (Q-7).
- Discerns and determines the functions, operation and parameters of electric and electronic elements and systems (Q-1, Q-4).
- Discerns and determines the functions, operation and parameters of pneumatic elements and systems (Q-1, Q-2).
- Discerns and determines the functions, operation and parameters of hydraulic elements and systems (Q-1, Q-4).
- Selects the electric, pneumatic and hydraulic elements from catalogues in compliance with parameters and symbols indicated in diagrams (Q-1, Q-2, Q-4).

- Installs and labels electric elements and systems (Q-4).
- Installs and labels pneumatic elements (Q-4).
- Installs and labels hydraulic elements (Q-4).
- Distinguishes the functions and selects individual modules of PC (RAM, external memory media, sound, graphic and measuring cards, modems, etc.) (Q-1, Q-4, Q-5).
- Configures basic equipment settings (Q-5).
- Installs software (Q-1, Q-4).
- Tests the installed computer system (Q-1, Q-5).
- Selects tools and measuring equipment from the standpoint of the measured physical value, range of its variations and required measurement accuracy (Q-1, Q-5).
- Plans the assembly and dismantling of electric, pneumatic and hydraulic parts of mechatronic devices and systems (Q-4, Q-5).
- Selects elements and indicators for assembly (Q-1, Q-4).
- Tests the elements, systems, components and units for assembly (Q-4, Q-6).
- Prepares the elements, systems, components and units for assembly (Q-4, Q-6).
- Assembles the modules and assemblies of mechatronic devices and systems (Q-4).
- Checks the correct flow of information and signals in the mechatronic devices and systems (Q-4, Q-5, Q-6).
- Measures the parameters of mechatronic devices (Q-3, Q-4, Q-5).
- Sets the working parameters of mechatronic systems and equipment (Q-3, Q-4).
- Checks the proper operation of basic assemblies and systems in various mechatronic devices (Q-1, Q-2, Q-5).
- Analyses the proper operation of electrical circuits (Q-1, Q-6, Q-5).
- Analyses the proper operation of pneumatic systems (Q-1, Q-6, Q-5).
- Analyses the proper operation of hydraulic systems (Q-1, Q-6, Q-5).
- Uses software technical documentation (Q-1, Q-5).
- Develops and modifies simple operating software (Q-5).
- Operates the controlling software (Q-1, Q-3, Q-5, Q-6).
- Programs manipulators and robots (Q-5).
- Checks the preparation of systems and devices' protection (Q-5, Q-6).
- Starts the devices according to the plan (Q-4, Q-5).
- Analyses the proper operation of systems (Q-1, Q-5, Q-7).
- Operates mechanical devices in compliance with technical documentation (Q-1, Q-3, Q-6).
- Operates controllers (control units) and software in compliance with technical documentation (Q-1, Q-6).
- Operates the electric, pneumatic and hydraulic elements and systems in compliance with technical documentation (Q-1, Q-6).

- Switches devices and systems on and off (Q-5, Q-6).
- Provides direct supervision of the mechatronic devices and systems (Q-6).
- Supervises equipment and systems through a visualization system (Q-6).
- Evaluates maintenance threats (Q-6).
- Controls the proper work of mechatronic devices and systems using diagnostic equipment (Q-6).
- Locates failures in devices and systems (Q-6).
- Assesses the outcome of breakdowns and associated risk (Q-5).
- Draws up protocols from failures and breakdowns (Q-6, Q-7).
- Maintains the mechatronic equipment and systems (Q-6).
- Plans repairs of mechatronic devices and systems (Q-6, Q-7).
- Selects elements from catalogues, selects substitute elements (Q-1, Q-6).
- Verifies the functions of repaired elements and assemblies (Q-5, Q-6).
- Removes malfunctions and re-starts the equipment and systems (Q-4, Q-6).
- Conducts warranty and post-warranty repairs (Q-6).
- Performs technical inspections (Q-6).
- Plans the schedule of assembly and dismantling works for mechatronic systems and equipment (Q-6, Q-7).
- Manages and supervises cooperation with persons responsible for spare parts status (Q-7).
- Organizes and supervises the status of tools and equipment necessary for assembly and dismantling works (Q-6, Q-7).
- Documents the assembly and dismantling works (Q-7).
- Evaluates the inventory of parts and elements needed for repair and assembly works of mechatronic equipment and systems (Q-6, Q-7).
- Sets the schedule for replenishing the spare parts inventory (Q-6, Q-7).
- Evaluates the type and number of necessary parts and elements using technical documentation of equipment and systems (Q-1).

Knowledge

- Fluid mechanics (Q-4).
- Selected elements of physics and chemistry concerning the issues of materials' properties (Q-3, Q-4).
- Programming numerically controlled machine tools (Q-3, Q-2).
- Operation of numerically controlled machine tools (Q-3).
- Operation of software controlling CNC machines (Q-3, Q-5).
- Cutting tools (Q-3).
- Occupational safety and hygiene regulations related to the operation of numerically controlled machine tools (Q-6).
- Basic knowledge on parts of machinery concerning mechatronic devices and systems (Q-4).

- Mechanical joints, permanent and temporary, used in mechatronic devices and systems (Q-4).
- Clutches, transmissions and brakes used in mechatronic devices and systems (Q-4).
- Basic electric, pneumatic and hydraulic elements and systems – parameters and functions (Q-1, Q-4).
- Rules for installing and labelling electric and electronic elements and systems (Q-4).
- Rules for installing and labelling pneumatic elements and systems (Q-4).
- Rules for installing and labelling hydraulic elements and systems (Q-4).
- Electro-pneumatic, electro-hydraulic and pneumo-hydraulic systems (Q-4).
- Rules for installing sensors (Q-4).
- Automatics – elements and systems (Q-4).
- Microprocessors (Q-1, Q-4, Q-5).
- Elements of computer system (Q-1, Q-5).
- Rules of using software (Q-5).
- Programming languages (Q-5).
- Selected issues from electric metrology concerning measurements of electric values (Q-6).
- Elements of control and measurement equipment (Q-6).
- Control and measuring equipment, controlled numerically or by computer (Q-6).
- Assembly and dismantling of electric, pneumatic and hydraulic systems (Q-4, Q-5).
- Industrial manipulators and robots (Q-5).
- Technology for assembly and dismantling of mechatronic elements and devices (Q-4).
- Signals, processing and standardization of signals in mechatronic devices and systems (Q-5, Q-6).
- Structure and operation of automated systems (Q-1, Q-3, Q-6).
- Structure and operation of electric and electronic systems (Q-1, Q-4, Q-5, Q-6).
- Structure and operation of pneumatic and hydraulic systems (Q-1, Q-4, Q-5, Q-6).
- Optical waveguide technology (Q-4, Q-5, Q-6).
- Measuring transducers (Q-1, Q-4).
- Analogue and digital control (Q-1).
- Controller system architecture (Q-1).
- Rules of programme execution by the controller (Q-5).
- Programming of robots (Q-5).
- Use of various mechatronic elements and devices (Q-1, Q-3, Q-6).
- Direct supervision of mechatronic devices and systems (Q-6).
- Devices for the visualization process (Q-6).
- Maintenance of automatic control systems (Q-1, Q-3, Q-5, Q-6).

- Co-dependence between the rules for operations and the structure of mechatronic equipment and systems (Q-1, Q-6).
- Safety in robotics (Q-5, Q-6).
- Rules of occupational safety and hygiene when starting and operating mechatronic equipment and systems (Q-5, Q-6).
- Diagnostics and auto-diagnostics of equipment and systems (Q-1, Q-5).
- Criteria for assessing the system's proper operation (Q-1, Q-5).
- Processes leading to breakdowns (Q-6).
- Breakdowns and failures (Q-6).
- Permissible breakdowns and breakdown analysis (Q-6).
- Operation hazards (Q-6).
- Mechanical, electric and software failures (Q-1, Q-5, Q-6).
- Technical sophistication of the operator (Q-6).
- Technical supervision functions (Q-7).
- Rules of using service documentation (Q-1, Q-4, Q-5, Q-6).
- Repairs of mechanical, electric, pneumatic and hydraulic systems (Q-1, Q-4, Q-5, Q-6).
- Tools and equipment used for repairs of mechatronic devices and systems (Q-Q, Q-5, Q-6).
- Rules of occupational safety and hygiene tied to the repairs of electric, pneumatic, hydraulic and mechanical equipment (Q-6).
- Documentation of assembly and dismantling (Q-4, Q-5, Q-6).
- Warehouse documentation (Q-6, Q-7).
- Software for maintaining warehouse documentation (Q-6, Q-7).
- Technical documentation for mechatronic systems and equipment (Q-1, Q-5).

Psychophysical features

- Independence (Q-1, Q-4, Q-7).
- Sense of touch (Q-3, Q-5).
- Quick reflex (Q-3, Q-4, Q-5).
- Good sight and hearing coordination (Q-3).
- Good sight and movement coordination (Q-3, Q-4, Q-5).
- Ability to work under stress (Q-4).
- Persistence (Q-4, Q-5).
- Mathematical skills (Q-5).
- Ease in switching from one activity to another (Q-4, Q-5).
- Resistance to adverse working conditions (Q-6).
- Ability to work quickly (Q-5, Q-6).

Specialist qualifications

- *Not identified.*

LEVEL 4

General vocational qualifications

- *Not identified.*

Basic occupational qualifications

Skills

- Configures the LAN and WAN networks (Q-5).
- Calculates parameters of systems and equipment (Q-5).
- Programs machinery constituting process lines and processing centres (Q-5).
- Tests the software of equipment and systems (Q-1, Q-5, Q-6).
- Plans the activation order of assemblies and modules of mechatronic equipment and systems (Q-5).
- Defines and checks the processes for processing and supplying energy in mechatronic equipment and systems (Q-5, Q-6).

Knowledge

- Types of networks (Q-5).
- Parameters of systems and equipment (Q-1, Q-5).
- Structure of the controlling software (Q-1).
- Methods for analysing the operation of controlling software (Q-1, Q-5, Q-6).
- Presentation of complex systems on the computer screen (Q-4, Q-5).

Psychophysical features

- Emotional resistance (Q-5).

Specialist qualifications

- *Not identified.*

LEVEL 5

- *Not identified.*

4.

Qualifications standard for the vocation of MASON (712102)

Authors:

- **Barbara Olech, M.Sc., Eng.**
Zespół Szkół Zawodowych w Rykach (Vocational Schools Complex in Ryki)
- **Krzysztof Wojewoda, M.Sc., Eng.**
Zespół Szkół Zawodowych w Rykach (Vocational Schools Complex in Ryki)

Methodology consultant:

- **Mirosław Żurek, M.Sc., Eng.**
Institute for Sustainable Technologies in Radom

Reviewers:

- **Ewa Łazik-Borowa, Ph.D., Eng.**
Lublin University of Technology
- **Rajmund Gawlik, M.Sc., Eng.**
Lubelskie Przedsiębiorstwo Budowy Pieców Przemysłowych S.A. (the Lublin Industrial Ovens and Furnaces Enterprise)

External evaluators:

- **Katarzyna Wójtowicz, M.Sc., Eng.**
the Maria Curie-Skłodowska University in Lublin, chief specialist for public procurement
- **Tomasz Pośpiech, M.Sc., Eng.**
CEO of the Municipal and Housing Management Company in Ryki
- **Jerzy Kostyra, M.Sc., Eng.**
„KOMA” production company in Ryki

1. Legal basis for performance of the vocation¹

- The Building Law dated 7th July 1994, uniform text (Journal of Law of 2000, no. 106 item 1126).
- The act dated 27th March 2003, amending Building Law and some other acts (Journal of Law dated 10th May 2003, No. 80 item 718).
- Regulation of the Minister for Land Development and Construction dated 30th December 1994, on independent technical functions in the construction industry (Journal of Law of 1995, no. 8 item 38).
- Regulation of the Infrastructure Minister dated 27th August 2002 on the detailed scope and form for safety and health protection plan, and the detailed scope of types of construction work which pose threats to human health and security (Journal of Law no. 151, item 1256).
- Regulation of the Minister of Economic Affairs dated 20th September 2001, on issues of safety and hygiene during the operation of machinery and other technical equipment used for earth, construction and road works (Journal of Law no. 118 item 1263).
- Regulation of the Minister of Infrastructure dated 6th February 2003, on issues of safety and hygiene during the execution of construction works (Journal of Law no. 47 item 401).
- Regulation of the Infrastructure Minister dated 26th April 2002 on the specimens and manner for maintaining central register of persons holding building licences, building experts and persons penalized with relation to professional liability in construction (Journal of Law no. 62 item 565).

2. Synthetic description of the vocation

Masons are employed in construction and renovation enterprises, and in crafts construction companies. They are the elemental and most numerous vocational group in the construction sector. They work directly at the construction site, on newly erected buildings, during the rebuilding, remodelling or refurbishment of existing premises. Activities performed by this vocation due to significant physical burden place it in the category of difficult works. The work requires good health, strength and stamina. It is performed both outdoors and indoors. Mason's work is often performed in difficult and changing weather conditions. A good, experienced mason is able to perform most works at the construction site – from foundations to the roof of the building.

Main tasks performed by masons include:

- erecting foundations, load bearing walls, curtain walls and partition walls (from small- and medium-sized elements),

¹ Legal status as of 1st June 2003

- building floors (from small-sized elements),
- making external and internal plaster,
- cladding.

Masons cooperate with most specialists working at the construction site: designers, building control inspectors, site managers, carpenters, fitters of sanitary installations, electricians, etc.

The masonry and plastering works are performed, depending on the construction size, by smaller or larger groups (crews) of workers. Smaller works are usually done by one mason, working with a helper. The mason's direct supervisor and coordinator of works is the supervisor, foreman or site manager, who allocates tasks to individual workers, supervises organization of construction site, is responsible for delivery of materials and equipment, and controls the workmanship. The mason reports directly to this person. In the mason crews, work is organized in such a way that the most experienced member lays the most difficult elements (e.g. corners), and others fill the spaces between corners with bricks. The mason must be predisposed to manage work performed by a helper which may include: mixing mortar in the concrete mixer and delivering it to the work position, delivering bricks, tools and other materials necessary for work.

In the mason's job, there are positions typical for the vocation: mason, supervisor, plasterer; and assistant positions: mason's helper, steel fitter, construction carpenter, concreter, site manager, building control inspector, land surveyor, stonemason, floor fitter, tile layer.

Professional tasks performed by the mason are broken down into three categories:

- masonry works,
- plastering works,
- finishing works.

The above categories of works include a number of activities performed by the mason or the helper, most of which are done manually. Mechanized works apply usually to the mixing of mortar and delivering it to the work place. Work frequently takes place on scaffolding, both indoors and outdoors. For security reasons, during work it is required to focus attention and follow the occupational safety and hygiene rules of the construction industry.

3. Positions

Table 1. Assignment of positions to the levels of vocational qualifications

Level of vocational qualifications	Typical positions	Comments
1	*)	
2	– Mason – Plasterer	
3	– Supervisor	
4	*)	
5	*)	

*) *Not identified in the research.*

4. Occupational tasks

- T-1. Use technical documentation and recommendations regarding execution of works.
- T-2. Prepare mortar and concrete using manual or mechanized method.
- T-3. Erect scaffolding for masonry works.
- T-4. Select appropriate tools, equipment and machinery for masonry works.
- T-5. Secure the place of work according to the regulations concerning occupational safety and hygiene, fire prevention and protection, environment protection and providing pre-medical aid.
- T-6. Set out foundations, load bearing walls, partition walls and other elements of the building.
- T-7. Build walls of various materials, walls with door and window openings, load bearing and partition walls.
- T-8. Erect chimneys, walls with ducts for smoke, fumes and ventilation ducts.
- T-9. Erect reinforced walls, lintels, floors with steel joists/brick infill, and arched vaults.
- T-10. Apply materials to insulate against moisture, heat or cold and noise.
- T-11. Setting door and window joinery, elements of metal joinery.
- T-12. Build multiple-leaf wall with air crevice, or filled with insulation material.
- T-13. Build partition walls of various materials.
- T-14. Cladding walls with facing brick, ceramic tile, natural stones and pointing.
- T-15. Determine the scope and duration of works.
- T-16. Organize own workstation.
- T-17. Provide employee restroom and warehouse space.

- T-18. Train employees in occupational safety and hygiene on the job.
- T-19. Provide materials and equipment to perform masonry and related works.
- T-20. Engage in business activity in the area of construction services.
- T-21. Evaluate the quality of masonry works.
- T-22. Accept masonry works.

5. Components of vocational qualifications

- Q1. Building load-bearing walls.
- Q2. Building partition walls.
- Q3. Building foundations, reinforced walls, lintels, floors with steel joists/brick infill, suspended beam and block floorings, and arched vaults.
- Q4. Performing auxiliary masonry tasks (mixing mortar, transporting materials to workstation, etc.).
- Q5. Performing associated works (laying insulation, cladding, etc.)

6. Correlation between occupational tasks and components of vocational qualifications

Table 2. Correlation between occupational tasks and components of vocational qualifications

Occupational task	Components of vocational qualifications				
	Q-1	Q-2	Q-3	Q-4	Q-5
T-1	X	X	X		
T-2				X	
T-3	X	X	X	X	X
T-4	X	X	X	X	X
T-5	X	X	X	X	X
T-6	X	X	X		
T-7	X	X		X	
T-8	X			X	
T-9			X	X	
T-10				X	X
T-11	X	X			X
T-12	X			X	
T-13		X		X	
T-14	X	X		X	X
T-15	X	X	X	X	X
T-16	X	X	X	X	X
T-17				X	
T-18	X	X	X	X	X
T-19	X	X	X	X	X
T-20	X	X	X	X	X
T-21	X	X	X	X	X
T-22	X	X		X	X

7. Extra-vocational qualifications

Table 3. Assignment of extra-vocational qualifications to vocational qualification levels

Level of vocational qualifications	Extra-vocational qualifications
SKILLS	
1	*)
2	<ul style="list-style-type: none"> - Adheres to the rules of occupational safety and hygiene and of environmental protection. - Provides pre-medical aid to the injured in case of accident. - In case of fire, organizes rescue and extinguishing action until the arrival of the fire brigade. - Plans and implements his vocational development path. - Improves his professional skills. - Applies teamwork rules. - Differentiates between jobs and positions on the basis of physical burden and psychophysical predispositions. - Introduces organizational solutions which improve work conditions and quality. - Conforms to orders of supervisors. - Reads employment-related documentation.
3	<ul style="list-style-type: none"> - Organizes workstation and manages the crew. - Determines staffing needs of the enterprise and rules for personnel selection. - Influences appropriate employees' attitudes. - Motivates himself and subordinate employees to work effectively and in a safe manner. - Foresees people's attitudes and behaviours in stressful and dangerous situations. - Assertively reacts to the conflicts of interests between employees in a given crew and in the whole enterprise. - Prepares documents related to setting up his business. - Prepares tax returns and social security (ZUS) declarations. - Investigates the labour market. - Uses in practice the knowledge on functioning of social mechanisms.
4	*)
5	*)
KNOWLEDGE	
1	*)

2	<ul style="list-style-type: none"> - Regulations on occupational safety and hygiene and environment protection. - Rules and methods for providing pre-medical aid to the injured in case of accident. - Fire prevention and protection regulations. - New technologies, materials, organizational solutions. - Technical conditions for execution and acceptance of works. - Teamwork. - Modern technical and organizational solutions improving working conditions. - Documents and regulations related to employment.
3	<ul style="list-style-type: none"> - Requirements on the organization of construction and assembly works. - Duties of a supervisor in a construction enterprise or company. - Rules for selection of masons, plasterers and helpers to the crew. - Motivates the team to work effectively and in a safe manner. - Work regulations and scopes of duties. - Market economy rules. - Obligations of a business entity towards superior bodies, fiscal authorities, Social Security Board (ZUS) and own employees.
4	*)
5	*)
PSYCHOPHYSICAL FEATURES	
1	*)
2	<ul style="list-style-type: none"> - Ready to help in emergencies. - Good eyesight and hearing. - Perceptiveness. - Quick reflex. - Self-control. - Passion for accuracy, order and tidiness. - Ability to concentrate. - Independence. - Persistence and patience. - Responsibility.
3	<ul style="list-style-type: none"> - Managerial abilities. - Imagination and creative thinking. - Objectivism and tolerance. - Ability to make quick and pertinent decisions. - Ability to cooperate. - Interest in technical issues.
4	*)
5	*)

*) *Not identified in the research*

8. Specification of qualifications: general vocational, basic occupational and specialist for the vocation

NOTE: Higher level qualifications contain lower level qualifications

LEVEL 1

- *Not identified.*

LEVEL 2

General vocational qualifications

SKILLS

- Adheres to the regulations and rules of occupational safety.
- Provides first aid to the injured.
- Applies the handy fire extinguishing equipment and agents in compliance with fire prevention and protection regulations.
- Adheres to the regulations and rules of environment protection.
- Wears protective clothing and personal protective equipment.
- Removes threats to the life and health of co-workers.
- Selects documentation needed to perform the works.
- Determines the location and scope of works.
- Uses instructions, attestations and safety certificates.
- Determines right angles using various methods.
- Reads the construction documentation and uses it.
- Performs the necessary calculations, drawings and auxiliary drafts.
- Organizes the workstation.
- Applies materials in line with technical documentation.
- Selects appropriate tools and equipment for masonry works.
- Uses the tools and masonry equipment according to their original purpose and occupational safety and hygiene rules.

Knowledge

- Fire threats and rules for fire prevention and protection.
- First aid in emergencies.
- Environment protection at the workplace.
- Protective clothing and personal protective equipment.
- Rules of occupational safety and hygiene and of fire protection while using tools, mechanical and electrical devices.

- Instructions for using power tools.
- Architectural and construction drawings.
- Rules for creating documentation.
- Markings on construction drawings.
- Rules for making working drawings.
- Basics of engineering drawing.
- Basic measuring equipment and tools.
- Control of proper staking out of the building's construction elements.
- Loads in construction.
- Grades of reinforcing steel.
- Rules for making formworks for construction elements.
- Technical conditions for execution and acceptance of masonry works.
- Organization of the construction site.
- Hygienic and sanitary requirements for employee rooms and warehouse spaces.
- Conditions for planning of the construction site.
- Knowledge of transport means, manual and mechanized.

Psychophysical features

- Distinguishing of colours.
- Sight and movement coordination.
- Dexterity.
- Ability to work under monotonous conditions.
- Balance.
- Ability to work under adverse weather conditions.
- Accuracy.
- Self-control.

Basic occupational qualifications

SKILLS

- Applies occupational safety and hygiene rules at the mason's position (Q-1, Q-2, Q-3).
- Reads the technical description (Q-1, Q-2, Q-4).
- Reads the architectural and construction design (Q-1).
- Reads working drawings (Q-1, Q-2, Q-4).
- Selects materials to make mortar and concrete (Q-4).
- Proportions the ingredients by volume, by weight or combining the weight and volume methods (Q-4).
- Determines the consistency and workability of fresh mortar (Q-4).
- Mixes mortar according to working recipe (Q-4).

- Uses the mortar and concrete mixes according to their original purpose (Q-4).
- Selects appropriate scaffolding for the work to be done (Q-4).
- Determines the suitability of materials to make scaffolding (Q-4).
- Assembles metal scaffoldings from prefabricated elements (Q-4).
- Checks the correctness of assembly (Q-4).
- Fixes batter boards (Q-4).
- Stakes out the placement of basic construction elements of the building, according to the architectural design (Q-1, Q-3).
- Selects materials to execute the individual construction elements (Q-1, Q-2, Q-3, Q-5).
- Builds brickwork walls from elements of varying thickness (Q-1, Q-2).
- Makes common bonds (Q-1, Q-2).
- Makes cross bonds (Q-1, Q-2).
- Makes bonds of bricks in walls which intersect at a right angle (Q-1, Q-2).
- Makes brick bonds in posts and pillars (Q-1, Q-3).
- Builds brickwork walls from perforated and chequer bricks (Q-1, Q-2).
- Applies occupational safety and hygiene rules at the mason's position (Q-1, Q-2, Q-3).
- Reads the technical description (Q-1, Q-2, Q-4).
- Reads the architectural and construction design (Q-1).
- Reads working drawings (Q-1, Q-2, Q-4).
- Selects materials to make mortar and concrete (Q-4).
- Proportions the ingredients by volume, by weight or combining the weight and volume methods (Q-4).
- Determines the consistency and workability of fresh mortar (Q-4).
- Mixes mortar according to working recipe (Q-4).
- Uses the mortar and concrete mixes according to their original purpose (Q-4).
- Selects appropriate scaffolding for the work to be done (Q-4).
- Determines the suitability of materials to make scaffolding (Q-4).
- Assembles metal scaffoldings from prefabricated elements (Q-4).
- Checks the correctness of assembly (Q-4).
- Fixes batter boards (Q-4).
- Stakes out the placement of basic construction elements of the building according to the architectural design (Q-1, Q-3).
- Selects materials to execute the individual construction elements (Q-1, Q-2, Q-3, Q-5).
- Builds brickwork walls from elements of varying thickness (Q-1, Q-2).
- Applies common bonds (Q-1, Q-2).
- Applies cross bonds (Q-1, Q-2).
- Applies bonds of bricks in walls which intersect at a right angle (Q-1, Q-2).
- Applies brick bonds in posts and pillars (Q-1, Q-3).
- Builds brickwork walls from perforated and chequer bricks (Q-1, Q-2).
- Builds walls from aerated concrete masonry units (Q-1, Q-2).

- Builds walls from hollow blocks and concrete blocks (Q-1).
- Erects walls with horizontal and vertical reinforcements (Q-3).
- Builds free-standing chimneys from bricks, hollow blocks and concrete blocks, and from ceramic products (Q-1).
- Erects walls with smoke, fumes and ventilation ducts (Q-1).
- Makes ducts from prefabricated elements (Q-1).
- Makes house drains (Q-1).
- Makes flat lintels (Q-3).
- Installs prefabricated lintels of the L type (Q-3).
- Makes masonry floorings (Q-3).
- Makes lintels and floors with steel joists and brick infill (Q-3).
- Makes formwork for lintels and flooring (Q-3).
- Builds vaults (Q-3).
- Prepares the reinforcement according to design (Q-3).
- Fits horizontal damp proof insulation in basement buildings (Q-5).
- Fits horizontal damp proof insulation in slab-on-grade buildings (Q-5).
- Fits vertical damp proof insulation in foundation and basement walls (Q-5).
- Determines the manner for fitting joinery and selects appropriate materials (Q-5).
- Mounts wooden door and window frames (Q-5).
- Mounts metal door and window frames (Q-5).
- Mounts window grates, railings and other similar elements (Q-5).
- Builds cavity walls and multi-layer walls (Q-1).
- Lays bricks in multi-layer walls, adhering to bonding rules (Q-1, Q-2).
- Bonds the inner leaf of the wall with the outer leaf (Q-1, Q-5).
- Prepares base for partition walls (Q-2).
- Erects partition walls, ½ and ¼ brick thick (Q-2).
- Bonds partition walls to load-bearing walls (Q-1, Q-2).
- Erects partition walls from aerated concrete blocks, 6 and 12 cm thick (Q-2).
- Mounts door frames in partition walls (Q-2).
- Erects partition walls from Pro-Monta gypsum boards (Q-2).
- Prepares base for external brick cladding (Q-5).
- Clads with natural stone (Q-5).
- Organizes the mason's workstation (Q-4).
- Assesses correctness of brick bonds in the wall (Q-1, Q-2).
- Checks the vertical and horizontal alignment during various phases of masonry works (Q-1, Q-2, Q-3).

Knowledge

- Threats associated with the mason's position (Q-1, Q-2, Q-3).
- Occupational safety and hygiene rules at the workstation and in mason's profession (Q-1, Q-2, Q-3).

- Types of construction binders and aggregates (Q-4).
- Rules for dosage and mixing of ingredients (Q-4).
- Properties of mortars and concrete (Q-4).
- Processes of bonding and hardening (Q-4).
- Knowledge of norms, standards, instructions and recipes (Q-4).
- Types of scaffolding for masonry works (Q-4).
- Rules for assembling and fastening the scaffolding (Q-4).
- Technical conditions for assembly and acceptance of scaffolding (Q-4).
- Masonry materials (Q-4).
- Types of masonry mortars (Q-4).
- Rules for bonding bricks in walls (Q-1, Q-2).
- Types of lintels, vaults and flooring (Q-3).
- Construction of and rules for reinforcing lintels, vaults and floorings (Q-3).
- Types of insulation materials (Q-5).
- Rules for insulating construction elements (Q-5).
- Assessment of insulation work quality (Q-5).
- Methods and manners for fitting wood and metal joinery (Q-1, Q-2).
- Rules for the performance of a multi-layer wall (Q-1).
- Conditions for performing masonry works during the period of low ambient temperatures (Q-1, Q-2).
- Materials used for cladding (Q-5).
- Rules for fixing cladding to the base (Q-5).
- Quantity survey of masonry works (Q-1, Q-4).
- Manual and mechanized transport means in the masonry profession (Q-4).
- Basics of wall performance (Q-1, Q-2).
- Norms for the thickness of brickwork joints (Q-1, Q-2).

Psychophysical features

- Interest in technical issues (Q-1, Q-3).
- Balance (Q-1, Q-3).
- Resistance to prolonged physical effort (Q-1, Q-2, Q-3, Q-4).
- Ability to work at heights (Q-1, Q-2, Q-3, Q-5).

Specialist qualifications

Skills

- Makes bonds of bricks in walls which intersect angles other than the right angle (Q-1, Q-2).
- Applies Polish („gothic”) brick bond (Q-1).
- Applies multi-layered bonds (Q-1).
- Builds walls from natural stone (Q-1).
- Builds arched vaults (Q-3).
- Builds composite vaults (Q-3).

Knowledge

- Smoke, fumes and ventilation ducts (Q-1, Q-2).
- Knowledge of construction materials, solid and perforated, for building walls with ducts (Q-1, Q-2).
- Conditions that free-standing chimneys must comply with (Q-1, Q-2).
- Arched and composite vaults (Q-3).

Psychophysical features

- *Not identified.*

LEVEL 3

General vocational qualifications

Skills

- Signs contracts with subcontractors.
- Performs take-offs.
- Prepares works schedule.
- Performs as-built quantity survey, to perform valuation of the executed works.
- Marks the construction site according to the current regulations on occupational safety and hygiene, fire protection and prevention, secures it against trespassing by third parties.
- Trains co-workers on the regulations on occupational safety and hygiene, fire protection and prevention.
- Marks dangerous locations at the construction site and workstation.
- Provides employee restrooms.

- Assures the supply of water and power in the case of lack of water supply and power network.
- Provides materials necessary to execute the works.
- Stores construction materials following the regulations on occupational safety and hygiene, fire protection and prevention.
- Selects and installs machines and equipment to execute specific works.
- Reads documents regulating issues of employment and business activity.
- Identifies and analyses information regarding requirements of employee (employer).
- Prepares documents related to employment and business activity.

Knowledge

- Rules of drawing contracts for construction works.
- Rules of making take-offs and as-built surveys.
- Basics of legal protection of labour.
- Rules for storage of materials following the regulations on occupational safety and hygiene.
- Knowledge of construction equipment and machinery.
- Tax regulations related to construction activity.
- Legislation regulating issues of construction activity.

Psychophysical features

- Ability to switch from one activity to another.
- Ease in expressing opinions.
- Ability to think logically.
- Imagination and creative thinking.
- Independence.
- Emotional resistance.
- Stereoscopic vision.
- Technical talents.

Basic occupational qualifications

Skills

- Verifies the completion of masonry works against project documentation and relevant regulations (Q-1, Q-2, Q-3).
- Checks the admissible deviation from the designed horizontal dimensions of rooms and the whole building (Q-1).
- Checks the admissible deviation from the designed vertical dimensions of rooms and the whole building (Q-1).

- Checks deviations in the thickness of walls, deviations from vertical and horizontal orientation of the building's elements (Q-1, Q-2, Q-3).
- Determines the building's axes (Q-1, Q-4).
- Stabilizes measuring points in field (Q-4).

Knowledge

- Technical conditions for execution and acceptance of masonry works (Q-1, Q-2, Q-3, Q-4).
- Values of admissible vertical and horizontal deviations of rooms and the building from the design (Q-1).
- Admissible deviations from the designed dimensions of rooms and the whole building (Q-1).
- Types of surveys (Q-1, Q-4).

Psychophysical features

- *Not identified.*

Specialist qualifications

- *Not identified.*

LEVEL 4

- *Not identified.*

LEVEL 5

- *Not identified.*