

Using International Standards of Quality Management System in Higher Educational Institutions

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Abstract - In this paper the authors have investigated the use of international standards of quality management system in higher educational institutions. It has been found that the effective work of a university, in order to provide educational services, depends on the implementation of quality standards ISO 9001, which enable to ensure the necessary quality of higher education and can improve the activity of higher educational institutions and systematize their processes, which affect the quality of graduates training and professional development of research and teaching staff.

Keywords - quality management system ISO 9001, educational services, documentation of processes, office suite OpenOffice.org, higher educational institutions.

I. INTRODUCTION

Formulation of the problem. Today, in a competitive environment, the crucial advantage of enterprises, institutions and organizations is professionalism of their employees, which depends on the quality of education. Ukraine, working to integrate into the European and global economic community, should have a high level of modern national education system, which would include global trends and domestic experience. This will give an opportunity to accelerate economic growth, to meet the growing needs and facilitate the revealing of personal creative potential. Therefore, Ukraine's participation in the implementation of the Bologna Declaration is very important.

The report of the Conference of European Ministers responsible for higher education, held in Belgium on April 28th-29th 2009, stated that the priority of higher education in the next decade is a constant focus on quality. Only under these conditions, the graduates will be prepared enough for professional work in a society that is rapidly changing and developing.

One possible way to achieve high quality services in the sphere of higher education is the development and implementation of quality management systems (QMS) according to international standard ISO 9001:2008 "Quality Management System. Requirements" (national standard ISO 9001:2009), "Quality Management Systems. Guidelines for the Application of ISO 9001:2001 in Education" (IWA 2: 2007) standards and recommendations of the European Association for Lviv Polytechnic National University, S. Bandery Str., 12, Lviv, 79013, UKRAINE, E-mail: Zhanna.V.Myna@lpnu.ua, Uliana.B.Yarka@lpnu.ua, Oksana.P.Peleshchyshyn@lpnu.ua, Tetiana.M.Bilushchak@lpnu.ua

Quality Assurance in Higher Education (The British Council in Ukraine, 2006).

Setting objectives. Among the various aspects of service quality management, an important issue is the use of international standards of quality management system in higher educational establishment. Therefore the task of integration of these standards of quality management into the general system of documentation of higher educational institutions arises.

The aim of the article is to research the use of international standards of quality management system of higher educational institutions.

The analysis of the latest research and publications. The last decade has outlined the systematic complex approach to the solution of the education quality problem. A whole range of scholars have dedicated their works to the problems of education quality: V.Belov, L.Vitkin, I.Lamanov, S.Laptev, V.Lohachev, V.Lapshov, V.Fokin, A.Khimicheva and others. In particular, the structure of documentation of quality management system of higher educational institution has been studied by Zh.V.Myna [1], U.B.Yarka considers the use of OpenOffice.org Basic for the needs of document study [2]. Also T.M.Bilushchak researches the means of processing the incoming correspondence of an enterprise using the office suite OpenOffice.org [3]. The leading scientists A.M.Peleshchyshyn and R.O.Korzh study the cataloguing of educational virtual communities [4].

II. INTEGRATION OF INTERNATIONAL STANDARDS OF QUALITY MANAGEMENT INTO THE GENERAL SYSTEM OF DOCUMENTATION OF A HIGHER EDUCATIONAL INSTITUTION

There are not many standards of quality in the sphere of education developed on the basis of the international standards ISO series 9000. The name of the standard is: ISO/IWA 2 "Quality Management Systems. Guidelines for the Application of ISO 9001:2000 in Education". This international standard was developed in 2003 as a result of an agreement of international conference (IWA 2 – International Workshop Agreement) held in Mexico in 2002. Today the second edition of this agreement is in action (IWA 2:2007).

In comparison with ISO 9001:2000 the standard ISO/IWA 2 does not have any additional conditions. It contains the guidelines for use of ISO 9001:2000 in

educational institutions and explanations connected with the quality management of educational service (Fig. 1).

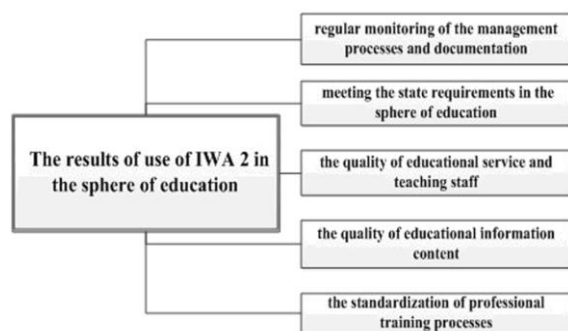


Fig. 1 The results of use of IWA 2 in the sphere of education

One of the components of the Bolgna Declaration is the standard for use in educational process – “Standards and Guidelines for Quality Assurance in the European Higher Education Area”, developed by the European Association for Quality Assurance in Higher Education. This document contains standards and recommendations for quality assurance in higher educational institutions, standards and recommendations for the external systems of quality assurance and standards and recommendations for the accredited agencies. The conditions of this standard are not connected with the conditions of ISO 9001, but are similar to them in their nature. It is the IWA 2 standard, which is aimed at helping the educational institutions to integrate the concepts of the two standards concerning the QMS into the educational practice.

According to the State Standard ISO 3001:2009 and State Standard II IWA 2: 2007 the main components of building QMS in higher educational institutions of Ukraine include:

- determining the politics, goals and tasks in the quality assurance sphere;
- designating an authorized representative of the higher educational institution's management for QMS;
- the organization of QMS's structure and responsibilities;
- staff training and motivation during the QMS development;
- defining the main QMS processes;
- developing QMS documentation;
- implementing QMS;
- further QMS improvement.

The material realization of QMS is a wholesome system of descriptions of higher educational institution's processes, their interaction, and control of processes related to the guarantee of product quality.

ISO 9000: 2001 identifies eight principles that contribute to the achievement of quality assurance objectives (Fig.2).

Implementation of process approach aims at written consolidating the regulations governing the work of QMS at higher educational institutions.



Fig.2 ISO 9001:2001 principles for the achievement of quality assurance objectives

The process approach is organized the following way:

- all types of activities are described as inter-related processes;
- the key processes are defined;
- resource management is a resulting process;
- effective results are achieved;
- there is possibility of using information technology for timely management decision-making.

The systematic approach (ISO ISO 9000-2001. Quality management systems – Fundamentals and Vocabulary [5]) to quality management means identifying and managing interrelated processes as a system that promotes more effective and efficient achievement of organizational goals.

In this regard, the transition to a process-oriented management organization requires a gradual transformation of existing regulations and procedures of the higher educational institutions into the documented procedures of the quality system. That is, within the structure of the documentation of higher educational institutions continue to operate internal regulations (regulations, orders, instructions, rules, statutes, etc.), which are included in the overall identification system of the QMS documentation of higher educational institutions with relevant requirements to the life cycle of the document.

Crucial for implementing quality management system is to create a subsystem for updating QMS documents. Such subsystem requires software, which combines tools for automating document creation, converting formats and data exchange using network technologies. MS Office by Microsoft and Open Office by Sun meet these needs [6].

Typical QMS documents have the same structure of the text, simple format and contain links to related documents. It is logical to create such documents by developing appropriate templates. It is reasonable to use programming in order to receive a complete and sufficient template. This can be done using Visual Basic in Microsoft Office and Open Office Basic for Open Office org suite [3].

If a higher educational institution uses electronic document management system (EDMS) for administrative and educational processes, the question of integration of these quality management standards into the overall system of documents arises. In this case the EDMS should ensure:

- forming a structured storage of documents on QMS;
- automation of creating documentation on quality, based on the agreed template of documents;
- supporting various versions of documents;
- organization and monitoring of processes of approval and distribution of documents.

An internal portal (website) of the higher educational institution may be also used for the representation of the QMS documentation. The openness of the quality system, awareness of employees about the aims and objectives in the sphere of quality, availability of documented procedures and of descriptions of work processes for end users contributes to the successful implementation of the quality system.

At the final stage of design and development of the educational services quality management system of higher educational institution it is necessary to prepare the documents for the certification of system.

While developing a QMS at a higher educational institution as a priority project, it should be taken into account that it has to meet the certification requirements, should not be too complicated and possess practical value. Quality Management System can be used as the basis of the information model of educational institution.

QMS is generally regarded as a kind of hierarchy that facilitates understanding of the documentation structure. Depending on the volume and importance of documentation, it can be divided into six levels (Fig. 3).

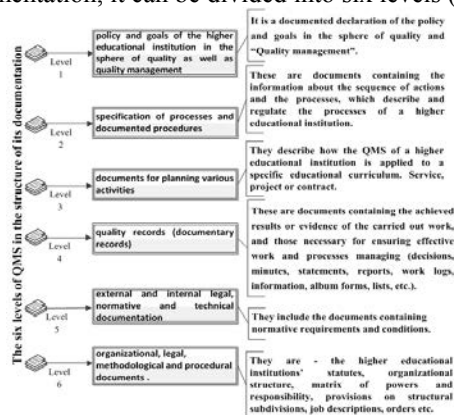


Fig. 3 The six levels of QMS in the structure of its documentation

To the planning documents at the higher educational institutions belong: educational and professional programs; curricula; working curricula of subjects; training schedules and timetables of control measures; other planning documents regulated by higher authorities.

The procedure of the development and approval of planning documents is defined by the relevant regulations of higher educational institutions.

Organization of training of graduate students and doctoral candidates is determined by normative documents on the preparation of scientific and pedagogical staff and carried out according the individual plans on the basis of agreements between universities and graduate or doctoral student.

The organizational structure of scientific activity and relations of its subjects is regulated by specific documents approved by the Rector.

Financing of research activities is carried out according to the procedure determined by normative acts, which regulate the activity of research universities.

External economic relations of a higher educational institution are carried out by means of contracts with individuals and legal entities.

Training of specialists for the foreign countries in the higher educational institutions is realized according to the international agreements of Ukraine, as well as agreements of the ministries, departments, higher educational institutions, signed with higher authorities, organizations, companies, foreign higher educational institutions, foreign citizens and international organizations.

A higher educational institution uses its foreign currency earnings and tangible assets, received as a result of the foreign economic activities, in order to ensure its statutory activities according to its budget.

The model of quality management system is based on the process approach, having at the input the requirements of customers and other stakeholders, and at the output – the satisfaction of the parties. A higher educational institution like any organization has both internal and external customers. The external customers are state, which is financing higher education, and enterprises and organizations that employ graduates; the internal customers are academic staff.

Each subsequent process of the system is the customer of the previous one. To meet the needs and expectations of external customers, it is necessary to meet the needs of the internal customers. In order to implement the continuous functioning of the system each process must act in accordance with the Deming PDSA principle (plan, do, study, act).

The quality of the organization of educational process is enhanced through the use of information technology in all kinds of higher educational institution's activities. It is also necessary to consider the document-information flows in terms of requirements for quality system documentation. It is also necessary to assess the possibility of using the existing information systems (IS) to achieve the objectives in the sphere of quality. Table 1 analyzes data usage and functionality of IS at Lviv Polytechnic National University in the process of development of quality management system.

TABLE 1

The goals in the quality assurance sphere	
Information system	Processes supported by IS
<i>The quality of educational service and teaching staff</i>	
«The deanery» – automation of deanery	<ul style="list-style-type: none"> • Creation of examination information • Support modules and examinations
«The education plans» – automation of the department of education-methodical work	<ul style="list-style-type: none"> • Creation of the education plans • Creation of schedules of the educational process • Calculation of teacher's load
«The timetable» – timetables for students and teachers	<ul style="list-style-type: none"> • Analysis of the distribution of educational and pedagogical load • Creation of timetable and exam schedules
«Graduates – The employment» – automation of SEC	<ul style="list-style-type: none"> • Documentation of student's practice • Creation of the protocols of SEC and examinations
«Repository of degree works »	<ul style="list-style-type: none"> • Creation of a centralized database for accounting diploma and further checks for plagiarism
<i>The quality of educational information content</i>	
«The virtual educational environment »	<ul style="list-style-type: none"> • Publication of educational materials • Organization of the control of students

Many planning documents of the university are the result of processes that are shown in the table. The continuous improvement of the quality of education is achieved by periodic analysis of data of information systems and management decisions based on facts.

III. CONCLUSION

Thus, to ensure high quality of graduates training and improve ranking of higher educational institutions it is necessary to use quality management principles to implement a quality management system according to international standard ISO 9001-2008 "Quality Management System. Requirements" (national standard

ISO 9001-2009), "Quality Management Systems. Guidelines for the Application of ISO 9001-2001 in Education" (IWA 2: 2007) standards and recommendations of the European Association for Quality Assurance in Higher Education. This will improve the activities of higher educational institutions, classify and organize their processes, which directly affect the quality of graduates training. The material realisation of QMS is a complete system of descriptions (documentation) of processes relating to quality assurance and processes of the higher educational institution.

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