

Maintaining Quality Management System at the Faculty of Aeronautics, Technical University Košice

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Abstract

The article deals with the implementation of the Quality Management System at the Technical University of Kosice and assessment the quality of teaching at this university. Furthermore, it is dedicated to the evaluation of the Faculty of Aeronautics as one of the faculties of the Technical University. Based on internal and external sources, the article also describes weaknesses in the implementation of QMS into practice.

Keywords Quality management system, QMS documentation, educational quality, improving the quality

1. INTRODUCTION

The institutions concerned with quality began to originate in 1919 (England). The important stage in the field of the quality started with the foundation of the International Organization for Standardization ISO in 1947 in Geneva. This organization has started to issue standards that are still used in QMS. Even if the problem of these systems is widely known, in Slovakia it got in the forefront in the recent years (in the late nineties). The phenomenon of implementation of quality management systems in various organizations and businesses did not avoid education. The Technical University Kosice is no exception as it already introduced the system more than 10 years ago. Although this certification system has been clearly completed, the question remains how is the introduction of these systems reflected in the quality of teaching at the university.

2. QUALITY MANAGEMENT SYSTEM

Quality Management System is a complex set of intra company standards, regulations and standardized methods. Their aim is to manage and organize all producing and supporting processes within the companies, so as to achieve persistently and repeatedly high standard quality of all products and services offered to their customers.

The definition of Quality Management System according to standard STN EN ISO 9000:2006, Quality Management Systems, Fundamentals and vocabulary. Quote: *“Quality Management System is systematic management of an organization for the purpose of persistent improvement of company’s activity, increase of customers’ contentment and those of participating parties, when fulfilling all demands set by this international standard.”* [Error! Reference source not found.]

2.1. History of quality management systems

The first attempt concerning QMS was realized after World War II in America. This standardization resulted in the development of MIL-Q-9858 Standardization – a quality system specification and the MIL-I-45208 Standardization defining control system demands. The BS 5750 Standard issued in 1979 was not only used at contracts between a buyer and a seller, but it also established a three-stage scheme of organization registration meeting the standardization requirements. Solving problems of quality, ordering and approaches towards unification in the organization was brought by ISO in 1978. It established the ISO 9000 Standards – issued by TC/176. System implementation is voluntary, but after having the standards it introduced, their respecting is obligatory. It is the top management that makes the decision regarding the introduction of the QMS. **[Error! Reference source not found.]**

The essential concepts of quality management include: ISO and TQM concepts. The concepts of branch standards are introduced in food processing, automobile industry, nuclear safety and with the armed forces. **[Error! Reference source not found.]**

3. THE IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM ACCORDING TO ISO 9000

Introduction of the QMS in an organization is connected with the input of too much time and financial resources. In the individual organizations the results can vary. Some of them show positive changes, some negative. The decision connected with the QMS is an important strategic decision that must be made by top managers. The result of the decision will unfold from the crucial points answered before its acceptance. Enterprise subject are still forced to establish the QMS from the customer's point of view. Customers demand confirmed distributor's credibility independently.

On the basis of researches in certified organizations, the top management is influenced by five principal factors: understanding current and future customer needs, certification as a marketing tool, gaining the competitive advantage, market internationalization, making continual improvement of products.

3.1. Steps connected with QMS according to ISO 9001:2008

When introducing QMS into an organization, it is necessary to assign management's responsibility and the leadership for the company employees to assure the quality. QMS introduced into an organization should assume the responsibility for its demands. It follows that each organization has its own specific QMS. Forming the QMS is a dynamic, long-term and never ending process.

Some steps concerning the introduction of the QMS:

- 1) decision concerning the introduction of the QMS,
- 2) present state QMS analysis,
- 3) education of the top management and the employees,
- 4) identification of the processes and its interactions as well as defining the authority and responsibility,
- 5) development and acceptance of the documentation,
- 6) implementation of the QMS into practice, trial period working,
- 7) final section of internal audit,
- 8) certification audit [4].

4. QUALITY MANAGEMENT SYSTEM AT UNIVERSITIES

The declarations of the Council of Europe emphasizes that the quality of education will become one of the key objectives of all kinds and types of schools and it must be ensured at all levels and in all areas of education (Council of the European Union, 2000).

It is necessary to recognize that the QMS applied in an industrial company varies from the one applied to a college. The quality objectives have to be different because students are not products of the University but basically customers, whose satisfaction should be achieved systematically.

When defining the quality of the university or teaching, it is not enough to only to identify and collect the results, which are subsequently compared with the set objectives. It is required to find out why these good or bad results have been achieved. It is necessary to determine student's satisfaction with teaching, teaching methods, student's evaluation of teachers, teachers' self-assessment, learning objectives and more. [Error! Reference source not found.]

4.1. Basic characteristics and the functions of the Technical University of Kosice

The Technical University of Kosice was founded in 1952, but its roots must be sought much deeper in the past. Government issued Directive No.30/1952 Statutes setting up three faculties, namely the Faculties of Heavy Engineering, Mining and Metallurgy. Other faculties were successively joined. Nowadays the Technical University of Kosice has 9 faculties, with the Faculty of Aeronautics as the youngest affiliate. [Error! Reference source not found.]

The overall accreditation of TUKE was realized in 2002, from that time on the school has been integrated as the university. The boards of TUKE include: academic self-government bodies, advisory bodies of the Rector, management board and the board of quality in TUKE.

5. QUALITY MANAGEMENT SYSTEM AT THE TECHNICAL UNIVERSITY KOSICE

The Council of quality ensures the compatibility of the quality management system and the university, coordinating and managing the entire staff of the University and achieving harmonization of the various management bodies. It is an advisory body of the Quality TUKE. The individual members and the President of the Quality Council are appointed and dismissed by the Rector TUKE.

Implementation of Quality Management System at the Technical University in Kosice was performed on the basis of the ISO 9001:2000 Standards. The building of this system lasted from April 2004 to July 2005. The STN EN ISO 9001:2000 Standard consists of eight segments that define the requirements to the successful certification of the university. This method should be fulfilled by TUKE, in order to achieve successful management of the overall process. [Error! Reference source not found.]

According to ISO 9001, the QMS was firstly introduced and certified in 2005. The certificate is granted for three years (2005, 2008 and the last time it was in 2011). Annually (i.e. in December) it is checked by the external organizations (TUV NORD, TUV SUD – for the last time). A QMS certificate of TUKE is seen in **Figure 1**. It is also checked by the internal audits executed by a specialist- coordinator at the individual faculties and on Rector's offices, currently officer for quality control agenda of TUKE. Every faculty has its own internal auditors. Their task is to audit the individual institutes at their faculties. The fundamental QMS documentation at TUKE is identical to the QMS documentation according to ISO 9001 (three stages of the documentation). The latest quality policy is announced for the years 2007 – 2013. These intentions are defined to reach TUKE's strategic goals.



Figure 1 Certificate issued for TUKE

Source: <http://www.tuke.sk/tuke/riadenie-kvality/medzinarodne-certifikaty>

5.1. Documentation of the Quality Management System at the Technical University

QMS documentation should be led in administered in accordance with STN EN ISO 9001 Standard. Developing the QMS documentation should be realized according to the steps resulted from the practice experiences.

The international STN EN ISO 9001 Standard determines the requirements for the documentation that can be divided into three stages (see Figure 2):

1. Úroveň – Level 1, atď



Figure 2 Levels of QMS documentation

Quality policy, Quality aims, Quality manual, Organizational guidelines, Procedures and records, Technological procedures, Safety regulations, Internal

Quality Policy

STN EN ISO 9000:2000 defines quality policy as: " a document jointly developed by management and quality experts to express the quality objectives of the organization, the acceptable level of quality and the duties of specific departments to ensure quality". Quality Policy at Technical University of Kosice can be found at the TUKE website, section - Quality Management. The current Quality Policy of the TUKE is valid for the years of 2007 - 2013. [Error! Reference source not found.]

Quality Objectives

Quality objectives should be processed in accordance with the quality policy. These strategies can be defined as quantified indication characteristics the organization intends to reach by the quality policy to a certain time in the future. Quality objectives of the Technical University in Kosice are available on its website.

Quality Manual

Quality manual is a fundamental and the most important QS document. It is a synthetic document that integrates all partial documents of the system. This manual gives us the survey concerning QMS in an organization. It includes some links to various stages of the documentation and serves mainly for effective management of organizational activities.

5.2. Maintaining and improving quality management systems for TUKE

Maintaining and improving QMS on TUKE includes building and permanently improving the quality of the management system, implementation of regular internal audits, monitoring and measurement processes, ensuring maximum efficiency and system performance, taking actions against the infringement of intended results, etc.

Maintaining and improving quality management systems for TUKE also involves customer satisfaction measurement, which in this case is the external environment of TUKE: students in every forms and levels of their study, persons educated in the forms of continuous education.

5.3. Quality Management Systems at Faculty of Aeronautics

The Faculty of Aeronautics of the Technical University Košice was founded on 13th of December, 2004 in Kosice with the effectiveness from 1st January 2005 as a successor to the Air Force Academy of gen. Milan Rastislav Štefánik Košice.

Together with the application of QMS at the TUKE, the quality has been transmitted into the functioning of the individual faculties. This Faculty of Aeronautics similarly to other faculties has its own quality manager and other employees participating at the faculty running together with QMS. Other quality managers can be found amongst the employees and lecturers, who participate in the internal audits and the faculty quality assessment. The quality of the faculty should be put at a required level and it should be present in all levels (teaching, institutes, lecturers, etc.).

Quality policy and quality objectives are in a compliance with the policy and objectives of the TUKE. The methods and trends of quality improvement at the FA TUKE are aimed at the teaching quality and

continual monitoring of the improvements. It is necessary to note that monitoring of the teaching and inspections are not performed at this school.

On the basis of a questionnaire submitted to respondents operating in Faculty of Aeronautics, whether they are teachers or students, we found out that the faculty is well-informed of the QMS but the practical usage of these systems is still in its infancy. A long-term practice is needed to learn the usage of QMS in teaching. As for the students, practice is needed to learn studying materials. In both cases, very little emphasis is laid on the acquisition of practical knowledge.

As QMS application in the teaching process is not extensive, with the main emphasis on the quality documentation. We have not noticed the application of the systems to teaching yet. The reason for it can be linked with the QMS (i.e. the new topic established to teaching and the faculties, institutes and lecturers have not identified themselves with it). Within the whole university, the courses or lecturers concerning QMS in teaching has already begun to reform.

On the basis of student's questionnaire, we found out that the students mostly asked for more foreign language teaching, introducing the practice into teaching and model situations at seminars and also decreasing the number of students.

6. RESULTS OF QUALITY ASSESSMENT AT AERONAUTICAL FACULTY OF TUKE

General suggestions for improvement emerging from the questionnaires, analyses and observations include:

- to find out not only the state of employees' familiarization with the QMS, but also the that of for students' familiarization with the QMS
- to explain QMS principles and their implementation to a study
- to find out the employees' familiarization state and their identification with quality policy
- to require the change concerning the improvement of the teaching quality from the institutes
- to inform the employees about the quality objectives fulfillment
- to organize e.g. meetings with airport manager, other employees, etc. for the purpose of bringing their activity closer, and so on.

7. CONCLUSION

It is necessary to realize that in today's numbers of universities and their faculties there is a great competitive struggle and therefore these institutions should seek to be particularly attentive to the quality of their teaching and also to the employability of the graduates. The introduction of quality management system is a major plus of the university, but if this trend is not implemented in actual practice and teaching, the efforts to obtain a quality certificate is not reflected in the attractiveness of the university. From evaluation results using both internal and external sources, major deficiencies can be identified in the quality of the teaching, including (or not) practical training in teaching and low employability of graduates, low scientific research activity, which result in decreasing the attractiveness of study at some faculties of the TUKE.

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